OHIO
MEDICAL AND SURGICAL JOURNAL.

Vol. 13. Columbus, November 1, 1860. No. 2.

Original Communications.

Notes on some of the Chemical Reactions of Solanine. By T. G. WORMLEY, M.D.

The solanine used in the following experiments was a very loose white powder, with a slight grayish cast, prepared and obtained direct from E. Merck, of Darmstadt. When examined by the microscope, it consisted of small crystalline laminæ and scales, and a small portion of amorphous matter.

The alkaloid was dissolved by the aid of sulphuric acid, and the reagents applied to a grain measure of the solution, contained upon a glass slide, or in a watch crystal.

1. POTASH.

1. $\frac{1}{100}$th, grain of solanine in one grain of water, gives with a very small quantity of potash solution, a copious white gelatinous precipitate, which is very readily soluble in excess of the reagent. In applying the reagent it is very necessary that the proper quantity be used: if there is slight excess, there will be little or no precipitate.

If 10 grain measures of the solution, contained in a small test tube, be acted upon by the proper quantity of reagent, the whole

mass becomes so gelatinous that the tube may be inverted without its flowing out.

2. $\frac{1}{500}$th, when the least possible quantity of reagent is used, gives a slight cloudiness.

2. Ammonia.

1. $\frac{1}{100}$th, gives with this reagent, a copious gelatinous mass, more copious than by potash, and not so readily soluble in excess.

2. $\frac{1}{500}$th, gives a quite good flocculent precipitate, not very readily soluble in excess.

3. $\frac{1}{1000}$th, a very satisfactory cloudiness, but no distinct deposit.

4. $\frac{1}{2500}$th, gives a just perceptible cloud.

3. Carbonate of Potash.

1. $\frac{1}{100}$th, when there is not large excess of reagent, gives a very copious gelatinous mass, not nearly so readily soluble in excess of reagent as when potash is used; with excess of reagent, there is a pretty good cloudiness.

2. $\frac{1}{500}$th, a quite good flocculent precipitate.

3. $\frac{1}{1000}$th, gives in a little time a quite satisfactory cloudiness.

4. $\frac{1}{2500}$th, after a little time a distinct cloudiness, better than by the previous reagent.

4. Carbonate of Ammonia.

1. $\frac{1}{100}$th, gives a copious gelatinous mass, soluble in excess of reagent, but not so readily as by either of the previous reagents; with an excess of reagent, it gives a very good cloudiness. Of the above four reagents, the last gives the best results, next carbonate of potash, then ammonia, and lastly potash.

If the above precipitate be acted upon by two or three drops of concentrated sulphuric acid, it immediately dissolves with a yellow color, and gives a colorless solution, from which a precipitate very soon begins to separate, and the solution acquires an orange tint; the precipitate increases, and soon the mixture assumes a good orange color, then a bright red, and ultimately a violet pink, which is permanent for some time, then slowly fades, and the precipitate changes to a dirty white. With a larger quantity of sulphuric acid the change of colors is not so good.

The action of sulphuric acid is much the same, upon the precipi-

tates produced by the three previous reagents, but not quite so good, especially with the precipitate produced by potash.

2. $\frac{1}{500}$th, a very good gelatinous precipitate, which after a little time becomes almost a mass; not readily soluble in excess.

The addition of two or three drops of sulphuric acid dissolves the precipitate with a decided yellow color; this is followed by a slight precipitate, and the mixture changes to a pinkish yellow.

3. $\frac{1}{1000}$th, a quite satisfactory cloudiness, which after a little time gathers into little flocks. A few drops of sulphuric acid gives a just perceptible greenish-yellow tint.

4. $\frac{1}{2500}$th, with a very small quantity of reagent, an immediate cloudiness, which after a little time collects into quite perceptible flocks.

5. $\frac{1}{5000}$th, after a little time, a slight cloudiness, which finally forms perceptible flocks.

Oxalate of ammonia, phosphate and borate of soda, give much the same reactions as the above reagents.

5. CHROMATE OF POTASH.

1. $\frac{1}{100}$th, gives a rather copious bright yellow flocculent precipitate, insoluble in excess, but readily soluble in a few drops of sulphuric acid, with a clear solution, which after a little time assumes a distinct bluish, or greenish blue tint. The acid develops none of the colors seen when acting upon the precipitate produced by any of the former reagents.

2. $\frac{1}{250}$th, immediately a precipitate begins, and in a little time there is a quite good yellow deposit.

3. $\frac{1}{1000}$th, after a little time a cloudiness, which becomes a quite fair flocculent yellow precipitate.

4. $\frac{1}{2000}$th, after a time a few little flocks.

Bichromate of potash gave no precipitate in a $\frac{1}{100}$th solution of solanine.

6. CARBOZOTIC ACID.

1. $\frac{1}{100}$th, with an alcoholic solution of the reagent, gives a very good yellow gelatinous precipitate, readily soluble in excess.

2. $\frac{1}{250}$th, a quite good yellow flocculent precipitate.

3. $\frac{1}{1000}$th, gives a quite fair cloudiness.

7. Tannic Acid.

1. $\frac{1}{1000}$th, a pretty good flocculent precipitate, which when allowed to evaporate spontaneously gives a gummy amorphous residue.
2. $\frac{1}{5000}$th, a pretty fair cloudiness.
3. $\frac{1}{10000}$th, gives a quite satisfactory cloudiness.

8. Bromine in Bromohydric Acid.

1. $\frac{1}{1000}$th, a copious amorphous precipitate most of which is bright yellow, a part however being orange yellow; after a time the precipitate changes to a dirty white, and slowly dissolves.
2. $\frac{1}{10000}$th, a good yellow precipitate which slowly fades to a dirty white and dissolves.
3. $\frac{1}{50000}$th, a quite perceptible cloudiness.

9. Iodine in Iodide of Potassium.

1. $\frac{1}{1000}$th, gives a bright brown orange precipitate and solution, unchanged by sulphuric acid, but readily soluble and discharged by potash solution, followed by a small, dirty white precipitate.
2. $\frac{1}{5000}$th, a bright red orange solution and slight precipitate.
3. $\frac{1}{10000}$th, a deep orange solution, with trace of precipitate.
4. $\frac{1}{50000}$th, a yellow brown solution.

The reaction of iodine with solanine has been regarded as quite characteristic of this alkaloid, but it must be remembered that the reagent gives a brown or reddish brown precipitate with many of the alkaloids. It is true, however, that the tint in this case is quite different from that produced in other alkaloids, and an experienced eye would readily detect the difference.

None of the following reagents will give a precipitate with a $\frac{1}{1000}$th, solution of the alkaloid: sulphocyanide of potassium, ferro nor ferricyanide of potassium, the chlorides of gold, platinum and palladium, iodide of potassium, nitrate of silver, sesquichloride of iron, nor chromic acid.

10. Sulphuric Acid.

If a very small quantity of solanine be added to a few drops of concentrated sulphuric acid, the alkaloid immediately becomes orange, and dissolves, giving a solution of the same color; however the color and reaction is much controlled by quantity and other

circumstances. This is the most characteristic test that we possess at present for the identification of solanine.

1. $\frac{1}{100}$th grain of solanine in one grain of water, when mixed with a few drops of sulphuric acid, the mixture immediately becomes yellow, and a precipitate begins to form, this soon increases, and the mixture becomes orange, then changes to violet pink; this color remains for some time, then slowly fades, and the precipitate becomes dirty white. If the mixture is heated the change of color is brought about more rapidly but they are not so bright.

If the precipitate which separates from the sulphuric acid is the *solanidine* of MM. Zwenger and Kind, we failed to obtain it in a crystalline form; it is true, however, the mixture was not boiled, except in a few cases. The peculiar and disagreeable nauseous odor observed by M. Wackenroder, was also observed in a number of instances when acting upon solanine with sulphuric acid.

If a grain of a $\frac{1}{100}$th solution of the alkaloid in sulphuric acid, be evaporated to dryness in a water bath, it leaves a glassy ring of residue destitute of any distinct crystals, the inner margin having a fine purple color. If this deposit be acted upon by a few drops of sulphuric acid, it immediately becomes yellow, and undergoes the same changes as detailed above.

2. $\frac{1}{500}$th in solution, when acted upon by a few drops of sulphuric acid, the mixture soon becomes yellow, changing to dull orange, and then slight pinkish, with a slight precipitate. If the $\frac{1}{500}$ solanine solution be evaporated to dryness, it leaves a transparent amorphous residue, which when acted upon by sulphuric acid changes as above.

3. $\frac{1}{1000}$th, in solution, gives after a little time, with a few drops of sulphuric acid, a faint yellow tinge, which becomes yellow, then slightly orange, then decided orange. $\frac{1}{1000}$th, dry, with one or two drops of sulphuric acid, becomes a decided orange, and dissolves with a yellow or brownish yellow solution.

4. $\frac{1}{5000}$th, with a few drops of the acid, after a few minutes a faint straw color, becoming more yellow. $\frac{1}{5000}$th, dry, gives a quite good deposit, which when acted upon by a small drop of the acid, becomes decided orange, and soon dissolves with a good yellow solution.

5. $\frac{1}{10000}$th, after some time a quite perceptible straw tint. $\frac{1}{10000}$th, dry, if a small drop of the acid be allowed to flow over the deposit, it becomes a distinct brownish tint, and dissolves with a decided yellow tint.

6. $\frac{1}{5000}$th, when evaporated to dryness, left a quite decided transparent deposit, which when touched with a very small drop of acid, gave a perceptible brownish color, and dissolved with a solution which appeared colorless.

If a solution of solanine in sulphuric acid, have stirred in it a small crystal of bichromate or nitrate of potash, the mixture undergoes about the same change as with sulphuric acid alone.

11. Nitric Acid.

1. $\frac{1}{1000}$th grain of solanine, when acted upon by a few drops of nitric acid, dissolves with a clear solution, which soon changes to a faint rose red, this becomes somewhat more distinct, but not very strong, the color then fades. We did not find that the vapor of ammonia improved the color. If the nitric acid solution have added to it a drop of chloride of tin solution, it undergoes no change of color.

2. $\frac{1}{5000}$th, after a time, a very faint tint, not satisfactory.

12. Solubility.

1. *In Chloroform.*—.1 grain of solanine was frequently agitated during several hours, with 200 grains of chloroform; upon agitation the alkaloid would diffuse itself through the liquid, but immediately upon reposing float upon the surface. The mixture rapidly filtered, and 120 grains of the filtrate evaporated to dryness at a low temperature, left a slight cloudy residue, which was inappreciable to a balance capable of turning with .0025 grain. The residue when touched with a small drop of sulphuric acid, gave about the same reaction as .001 grain of solanine; it would therefore seem that the alkaloid required about 100,000 times its weight of chloroform to dissolve it. It is possible that this small quantity escaped mechanically through the filter.

Experiments were also made, by dissolving a salt of solanine in water, and decomposing the salt with an acid, then agitating the mixture with several volumes of chloroform. The results were, however, the same as above.

2. *Ether.*—The same experiments were made with this liquid with about the same results, if any difference, the ether seemed to dissolve the most, however the quantity dissolved was not an appreciable weight.

The alkaloid dissolves very readily in alcohol, which upon spontaneous evaporation leaves it in beautiful crystalline silken tufts.

Columbus, O., Oct., 15, 1860.

Strychnia and the Treatment of its poisonous effects. By WM. A. BROWN, McConnelsville, Ohio.

The products of the two species of the genus Strychnos, the Strychnos Nux Vomica, and S. Ignatia, are about identical in character, the active principles being the same—strychnia, brucia, and igasuria, the latter having been recently discovered. The physiological effects depend principally upon strychnia, to which their therapeutic value is mainly due. This has been found to exist in much greater abundance in the bean of St. Ignatius; the per centage being, for Nux Vomica, 0.4, and for the bean of St. Ignatius 1.2, (Wood). But the former is the article most commonly used in medicine. The effects on man, in small and repeated doses, are those of the ordinary bitter tonics; increasing the appetite and hastening digestion. But it has more in its favor than other vegetable tonics, from its peculiar action on the nervous system, with reference to which, more particularly, it is used. In conditions of general nervous debility and insufficient innervation in those organs dependant for their due supply of nervous force on the spinal marrow, for it is essentially a spinal stimulant, and in functional defect of nervous power, it will be found of immense value. Pyrosis, gastrodynia, constipation, and flatulence from torpor, enteralgia and nervous colic, atonic diarrhœa and dysentery, impotence and spermatorrhœa have been permanently cured by it. Its stimulant influence on the nervous centres, developing an increased exercise of their functions, renders it useful in spasmodic asthma, chorea, tic dolereaux, headache, mental dejection, hypochondria, and has been used with asserted advantage in epilepsy. As a spinal and sensorial stimulant it is used in paralytic affections of function merely, without organic disease or injury of the centres—as in incontenence of urine from palsy of the sphincter muscles, and in loss of taste, smell, and in deafness it may be used with hope of advantage. I have seen functional aphonia of long standing, and obstinate dyspeptic symptoms yield immediately to its influence after having resisted various modes of treatment. In paralytic affections, consideration must always be given to the causes of these complaints, as if used too soon after palsies from inflammation and hemorrhage of course the trouble would only be increased.

XUM

But it is the poisonous effects of this drug, we wish more particularly to consider in this place, and the rational treatment for obviating the fatal issue. It is known that in doses beyond its tonic and stimulant effects it becomes destructive to life. The quantity, however, in which it is poisonous is variable and uncertain, according to individual idiocyncrasies; the susceptibility to its influence differing greatly in different individuals. Fifteen grains of powdered nux vomica are said to have proved fatal, yet recoveries are reported to have taken place after more than an ounce had been taken. "The poisonous dose of nux vomica will probably exceed a drachm," (Wood). The bean of St. Ignatius containing three times as much strychnia will be in an equal degree more poisonous, in the same quantities. The smallest quantity of strychnia known to have caused death is half a grain. Dr. Denig, of Columbus, reports a case in this Journal (November, 1858, p. 100,) of a recovery after a grain had been taken, and recoveries have taken place after much more had been swallowed. In a half an hour or more after a poisonous dose of strychnia has been taken, the patient is attacked with spasms which come on like electric shocks, and last from one-half to two or three minutes; affecting the muscles of the back, producing complete opisthotonos, and the muscles of the extremities which are straight and inflexible, and the toes and fingers generally flexed—muscles hard and solid during the continuance of the spasm. The patient has no control over his muscles, and if seized while standing will fall to the floor, and during the paroxysm will frequently perform muscular feats which no effort in health would enable him to accomplish. A sudden noise, puff of wind, or drop of cold water is sufficient to induce an attack, and any movement of the limbs will produce a trembling and shivering of the muscles which may be felt vibrating under the hand. Intelligence frequently perfect throughout, but in some cases there is complete insensibility—the pupils sometimes dilated, sometimes contracted. In some cases the jaws are immovably fixed as in trismus. Respiration and circulation, at the commencement, are not always affected in the same manner; being sometimes increased, sometimes diminished.

In the treatment the first thing which should be sought to be accomplished is to empty the stomach as soon as possible by an active and prompt emetic, and nothing will be found better for the purpose than sulph. zinc and Ipecacuanha. Substances have been

proposed as antidotes to strychnia on the ground that they render the poison insoluble, but they are not reliable. Animal charcoal would seem to stand at the head of this class of remedies from the experiments of Dr. Garrod and others. But neither the evacuation of the stomach nor the administration of absorbent substances, will obviate the effect of that portion taken into the circulation. And we must look to the Materia Medica for antidotal substances with reference to their physiological action on the economy. In selecting these we must consider the pathology of poisoning by strychnia. It has been known for ages, and the direct observation of every succeeding generation confirms the fact, that certain specified substances taken into the system produce certain peculiar changes and effects indicative of their action, which are *cet. par.* constant in character. Thus we know that Musk, Valerian, Coffee, Tea, are general nervous stimulants; that Opium, Hemp, Hyosciamus, &c., are cerebral stimulants; and that Strychnos Nux Vomica is essentially a spinal stimulant. Each of these may prove poisonous when administered or taken in doses beyond their remedial and salutary action; a mysterious property, inherent of drugs, and the endowment of the different parts of the living structure with certain susceptibilities, by which, when the two are brought together, certain changes in action are developed. Of the nature of the intimate mode of action we will be "*nearer* the truth to confess our ignorance," says Trosseau. The *effect* of this disturbance of harmony in the normal relations of the nervous system, is analagous to a sanguineous congestion or local determination to a visceral organ under a specific stimulus. Poisoning by strychnia is active congestion of nerve fluid in the spinal marrow, which is at first stimulated into an increased exercise of function, and finally overwhelmed and disabled, and death ensues. It is an established physiological law that there is a limited amount of blood and of nervous power. And the accumulation of one or the other in any part of the economy is at the expense of all other organs, the supply due to which is diminished; and the organ where the accumulation occurs fails under the excess, and through the failure of exercise of its proper functions there is a suspension of all vital processes. This is the case with the spinal marrow under poisonous doses of strychnia, which induces an active determination of nerve fluid, and it is rendered in consequence of the excess, incapable of performing its peculiar offices in the economy,

XUM

and the patient succumbs. Granting these premises we are guided to the rational treatment of persons under the poisonous influence of this drug, and can render philosophic explanation of the generally successful issue in those cases where the proper indication for medication has been fulfilled whether from reason or accident. After the preliminary treatment of evacuating the stomach to insure the removal of any unabsorbed portion of the poison, no time should be lost in the immediate administration of cerebral and general nervous stimulants. The patient may be found to resist the action of these in doses that would be injurious in health, and they should be given freely and continuously; a very excellent combination will be,

℞. Camphor.
Assafœtida ää grs. v.
Say every half hour.

And this might be improved by the addition of a little Acetate or sulphate of Morphia; and if necessary may be given in much larger doses. We thus go upon the *revulsive* plan, by administering substances whose characteristic action is in other parts of the nervous system, calling off the excitement from the spinal marrow, equalizing the distribution of nerve fluid, and in all probability we save the patient if the vital powers are not so far prostrated as to render the absorption of medicines impossible, or the determination so active under very large doses of strychnia, that other nervous stimulants will not act with any force from the greater power of action of the strychnia. We must give nervous stimulants of sufficient power and in sufficient quantity to produce an impression sufficient to restrain the active determination to the spinal marrow —and if this can be affected our desired result is probably attained. On the same principle opium is remarked as an antidote to the poisoning of Belladonna, by spending its force on a different part of the brain.

Diphtheria.

Prof. Hamilton.—Believing that anything connected with the subject of Diphtheria will interest your readers, I am induced to furnish you with a brief account of it as it has appeared in this vicinity. In doing so, I intend to take up but little of your space

with a detail of symptoms, etc., already familiar to all readers of medical journals for the last two years, but wish, more particularly, to point out certain differences between the cases coming under my observation and those of several of your contributors.

The first case occurring here was early in June. Since then I have met with probably thirty cases, and the disease is still prevailing. It has not been confined to young children; on the contrary, a majority of the cases have been over ten years of age. The oldest patient I have had in whom the membrane was well formed, was twenty-one years of age; although I have met with several of middle age, in whom the constitutional symptoms, congestion of the fauces, and peculiar fetor of the breath, were well marked. In three large families of children, in which there were nursing children, it is a little remarkable that the infants alone should escape. The mode of attack has been very similar in all the cases, however much they may have differed in their course and termination. A great majority of the cases had had slight sore throat for some days or weeks, and always attributed the real attack to some exposure "bringing back the sore throat." Chilliness, fever, pain in the head and back, and nausea or vomiting, with soreness of the throat, mark the period of invasion. The febrile excitement and headache, nausea, &c., subside on the second or third day, leaving nothing alarming in the general appearance of the patient. The pulse is nearly natural in frequency but readily excited by slight exertion, tongue moist and but slightly coated, skin cool and moist, bowels constipated, fecal discharges quite healthy in appearance, and, in short, nothing in general symptoms to excite alarm. In but one case have I met with the typhoid symptoms so generally mentioned by writers on this disease. On examining the throat the first day, nothing is seen differing at all from an ordinary angina. The mucous membrane is congested, and there may be some enlargement of the tonsils, and there is always a peculiar fetor, if not discovered on the breath it will be found sticking to the spatula. On the second or third day the membrane appears, and what is a matter of no importance, perhaps, and yet is a little singular, it has in every case selected the right tonsil for its point of attack, and from it extends into the fauces, nasal cavities, upon the mould and roof of the uvula, and in some cases invades the larynx and trachea. The membrane has varied very much in appearance, though generally it has been of a

yellow color. It has varied in thickness from the thinest possible film to a quarter of an inch thick; has in some cases well defined edges of an eighth of an inch thick, and in others seems to be gradually lost upon the mucous membrane. In one case it was perfectly transparent, so that I was only able to determine its anterior limits by detaching it with the forceps. In every case there is an almost intolerable fetor. The membrane continues present from four to fourteen days. In many cases there is great swelling of the tonsils and external glands of the neck, and in others there is no considerable tumefaction of either.

One peculiarity I met with in two cases, that I do not remember to have seen mentioned by any writer, viz: a bronzed or crisped appearance of the skin of the neck, coming on about the fifth day and continuing for several days. In the first case I saw of this, it was so well marked that the nurse insisted that it was caused by the sinapisms we had been using, which I thought probable myself at first, but it spread all over the chest and looked exactly as though the delicate skin had been exposed to a hot sun long enough to produce partial vesication. In the second case the appearance was not so well marked, resembling more an ordinary browning from the sun. Both these patients were young ladies with very delicate skins, which made the appearance more striking. In many cases I found an abundant crop of sudamina covering the throat and chest. I might mention here, that in one case in which I applied a blister around the throat, the denuded surface was speedily covered with a thick yellow membrane exactly like that in the fauces.

But it is after all traces of the membrane has disappeared from the throat and convalescence seems fairly established that the most remarkable symptoms appear. As no mention is made of the condition I allude to by any of your contributors, I suppose none of them have met with it. I am glad that such cases are rare, for these secondary symptoms are the most frightful feature of this truly formidable disease.

I will illustrate this by a case. The first case I saw was a girl aged fifteen years. She was the only patient I have had in whom the typhoid symptoms spoken of by authorities were present. In ten days from my first visit I discharged her as well. The fauces had recovered the natural condition, appetite was restored and everything indicated a speedy return to vigorous health. During the next week I heard from her frequently, that she was doing

well, was out of bed and assisting a little in the duties of the household. Ten days from my last visit, in passing the house, I called to see her, found her up about the house, but was struck with the death like pallor of her face and the bloodless condition of her lips and mouth. Said she had had some trouble with pains in her stomach and bowels for some days, but felt very well otherwise. That night the family retired as usual, the girl resting well until nearly daylight, when she awakened her father by vomiting. She vomited two or three times and had as many evacuations from the bowels, and complained of irregular pains in the bowels. I was called at 7 o'clock, A. M. Found her extremities entirely cold, the skin of her hands shrivelled as if long immersed in water, features shrunken, pulse extinct, intellect unimpaired and with sufficient muscular power to get up and walk. She died in half an hour after my arrival. This is the only case I have met with in which death occurred in this manner. In two other cases, however, exactly the same train of symptoms have followed the partial convalescence. For a week or two after the throat difficulty had disappeared, everything seemed to be going on desirably, when suddenly the most extreme anemia supervened, the lips and mouth were bloodless, the pulse more hurried than in the first week, patients were dull and languid, disposed to sleep a great deal, and complained of pains in the stomach and bowels. In connection with this anemic condition occurred a variety of nervous symptoms. Deglutition became more difficult, and articulation was more imperfect, depending, doubtless, upon paralysis of the muscles concerned. Following soon afterwards was a feeling of numbness, commencing in one case in the lips and cheeks, and extending gradually over the whole body, accompanied by partial loss of motion in the lower extremities; and in the other confined to the hands, alternating from one to the other.

I have had but three fatal cases, the first of which was the one mentioned above. The second was a boy ten years of age, son of Esq. Kilgore, of Brown township, Franklin county, whose family suffered more from the disease than any other in the neighborhood. I was at the house when the boy came in from his work in the field, complaining, as had all the other cases. I examined his throat immediately, and found a band of the membrane stretched across the slightly enlarged right tonsil, looking very much as though the mucus membrane had been lightly touched with creosote.

XUM

This was the only case in which the membrane appeared so early. There was nothing unusual in his general or local symptoms, only that there was rather more external swelling and drowsiness than in the other cases. The membrane covered the fauces, about half of the roof of the mouth, spread into the nasal passages, and was remarkably transparent. For the first four days he seemed as likely to recover as had any of the other cases. On visiting him on the fifth day, I found his extremities quite cold, pulse very slow and feeble, very drowsy, and the breathing quite labored. His strength was but little impaired; got out of bed several times during the afternoon, and walked about the room, and wished to go to the pump for a drink not five minutes before he died. After dozing a few minutes he very suddenly sprang up in bed as if choked, and fell back dead. The third fatal case was a little girl, seven years of age, died from secondary croup, on the seventh day of the disease, and in thirty hours after the croup symptoms came on.

Of treatment I have but little to say, only that it has been unsatisfactory. Not that the proportion of fatal cases has been very great, but the little effect of remedies in checking the progress and altering the course of the disease, and the same results following the most widely different treatment, or where no medication at all was adopted, leads me to doubt somewhat whether we should claim much credit for our remedies in Diphtheritis.

My treatment has been cathartics or emetico-cathartics in the commencement, and the use of chlorate of potash, muriated tinct. of iron, and quinine. In the first few cases I met with, I gave calomel and ippecacuana to produce free vomiting and catharsis. Later I used the compound cath. pills as a cathartic, and for the past few weeks have given the saline cathartics in the first few days of the disease. Local treatment has been varied, as some new idea would occur to me. From the almost universal credit given nitrate of silver in this disease, I expected great benefit from its use, but I have been badly disappointed with it, and have thrown it aside entirely. It will neither prevent the spread of the membrane, nor its reproduction when it has been removed mechanically. In several cases I removed the membrane very carefully every day with forceps, and applied the nitrate of silver solution, in strength varying from ten to sixty grs. to the oz. of water, and continued it until I became satisfied that it was of no benefit. Borate and carbonate of soda, common salt, act. plumbi, sul. zinc,

etc., etc., were tried in different cases, and all with the same result, viz: that the membrane was undisturbed in its progress by any of them. Tannic acid in solution, and used as a gargle, seemed to be useful in the latter stage of the disease, when the membrane was disappearing, in restoring tone to the weakened mucus membrane. For the last several cases I have treated, I have given the saline cathartics, chlorate of potash, muriated tinct. of iron, and quinine, and contented myself with letting the membrane alone, only using as a gargle a weak solution of muriated tinct. of iron, and a solution of chlorate of potash, the latter having the positive merit of lessening the fetor at least. Where there is painful tumefaction of the external glands, I apply tinct. camphor or a camphorated liniment.

If treatment in the early or membranous stage of the disease is unsatisfactory, it is equally so later, when the anemia, paralysis, and extreme debility seem so imperatively to demand treatment. For the last two months I have had cases on the constant use of chalybeates, quinine, Hall's solution of strychnia, and generous diet; have kept up counter irritation along the spine, have enjoined regular exercise in the open air, and have surrounded the patients with all the circumstances calculated to improve the general health, but the degree of improvement has not been very encouraging. For some days at a time the improvement will seem to be well marked, when without any apparent cause, the pallor, numbness, debility, &c., will return again to discourage the patient and physician.

I will say, in concluding this too lengthy letter, that the disease does not seem to have been contagious here. It has been scattered over a country of several square miles, and a majority of the cases could be traced to no connection or association with others having the disease. In some of the worst cases, I was in the habit daily of removing the membrane from the throat, a proceeding which subjected me to the necessity of inhaling the fetid breath, and frequently having my face and eyes completely sprinkled with the detached membrane and foul secretions from the fauces of the patients; but I have escaped every symptom of the disease.

Very truly yours,

J. N. BEACH.

WEST JEFFERSON, *Madison Co., O.*, Sept. 24, 1860.

Marriages of Consanguinity. Abstract of the Report of Prof. S. M. BEMISS, with remarks, by A. D. LORD, M.D.

The influence of the intermarriage of relatives upon offspring has attracted more or less attention from physicians, and especially from those connected with Institutions for mutes, blind, insane and idiots, for some years past; public attention has also occasionally been called to the subject in various ways; but we are indebted for the statistics of a large number of cases, to Prof. S. M. Bemiss, M.D., of Louisville, Ky., who, as chairman of a committee, presented an elaborate report on the subject to the American Medical Association, in 1858.

The writer of this article, having had opportunity to observe the relations of such marriages to the class of persons with which he is connected, and being desirous to bring the subject before the physicians of this State, and supposing that many of them may not have examined Prof. Bemiss' report, has prepared the following abstract.

The report presents the statistics of 873 marriages of parties related in different degrees: these are furnished from 25 different States (including all in the Union except Rhode Island, Florida, Louisiana, Texas, California, Minnesota, and Iowa), and the tables include the following particulars: the temperament, health, habits and occupation of the parties, their age at marriage, the number and sex of their children, the number who were defective—deaf and dumb, blind, idiotic, insane, epileptic, or scrofulous; those who died young, with their age, and the cause of death; and other facts in regard to mental peculiarities or bodily deformities.

Of these the author speaks as follows:

"The statistics have been furnished exclusively by reputable physicians in the various States to which they are credited.

"Contributors have been particularly requested to furnish, without prejudice or selection, all instances of marriages of consanguinity within their various circles of observation, whatever their results.

"That these observations might be more readily studied, they have been arranged upon the tables in classes corresponding with their estimated grades of relationship, as follows:

CLASSES.	DEGREE OF RELATIONSHIP OF PARTIES.	
A.	Brother and sister, or parent and child	10
B.	Uncle and niece, or aunt and nephew	12
C.	Blood relations, themselves descendants of blood relations	61
D.	Double first cousins	27
E.	First cousins	600
F.	Second cousins	120
G.	Third cousins	13
H.	Cases irregularly reported, all first cousins	30
	Total	873

"I have arbitrarily fixed twenty-two years as the extreme average length of time married women continue to produce in this country; consequently, all marriages set down upon these tables as having occurred before 1835, are supposed to be complete in their results, so far as it regards reproduction.

"In regard to constitutional predisposition, and peculiarities of parents, the tables present some interesting facts. It will be perceived that parental infirmities are entailed with great certainty upon the offspring, and this, in the opinion of the reporter, constitutes the strongest argument against the intermarriage of relatives; the fact that family peculiarities, tendencies and infirmities, either of mind or body, which may be so slight on the part of parents as to remain latent, become so exaggerated by this 'intensifying' of the same blood, that they are in the child ruinous defects.

"Observation will show that the numbers in the column marked 'defective,' underrate the sum of defects occurring to the offspring, since in very many instances, where children have died young, these defects have escaped the attention of contributors, and often, perhaps, that of the parents. This remark would hold especially true of congenital deaf-muteism and idiocy, either of which may exist unsuspected in very early infancy. It is not only a natural inference that many deaf and dumb, and idiotic children of these marriages have died without being reported as laboring under these defects, but the supposition finds complete corroboration in the fact that in classes B and D, in both which the percentage of early deaths is largely over that of any other classes, the percentage of defects is less than we are prepared to expect, and the reduction of mean of defects occurs precisely in the columns assigned to deaf-dumbness and idiocy, but more sirikingly in the latter.

"It has been a source of regret to me that the tables require so much space, but every case has been condensed as much as was

compatible with its intelligible presentation. Another inconvenience attending the great compass of the tables is that it will prevent their general diffusion through those circles where it is more important to awaken investigation and impart knowledge in reference to this subject. In some part to obviate this difficulty, I have prepared a table of 'aggregates,' which is an exhibit of the results of the marriages comprised in the tables.

"I have also prepared two tables of comparative results, which, in connection with the table of aggregates, present a condensed exposition of the questions involved in my report. The first of these tables is composed of observations of the results of marriage where no influence of consanguinity prevails. The correspondents who furnished these cases selected them as fair examples of the average results of marriage under similar circumstances, in their various communities. They were chosen without any other restriction or requisition than that the husband and wife should not themselves be related, nor have been the immediate descendants of kindred parents, and that the females should have ceased to ovulate, so that we might know that the results were complete as it regards fecundity.

"The second table is made up in part from a report made to the Secretary of State of Ohio, under an enactment of their Legislature requiring a census of the deaf and dumb, blind, idiotic and insane inhabitants of that State, and the number of each of those classes who were the offspring of marriages between blood relations. This latter clause of the enactment was totally neglected in many of the counties, and in others it seems to have been ill executed, yet this report contains a large amount of information, valuable to my purpose, exhibiting as corroborative statistics a remarkable correspondence with the facts furnished in my collection of cases. To illustrate more perfectly the coincidence between the statistics from these two sources, I have divided the observations of marriages of consanguinity furnished by the Ohio report into classes corresponding as nearly as possible with the classification on my own tables.

"Next this table comprises the results of two hundred marriages from the Ohio report, between the parties to which no ties of consanguinity were supposed to exist, yet each of which had given birth to deaf and dumb, blind, idiotic, or insane issue. These were taken—the first hundred from the commencing pages, and the last

hundred from the concluding pages, without other selection than that the parents should be reported as not related (and from those counties which had returned marriages of cousins), and that the defects of offspring should be congenital. The parties to these marriages were undoubtedly the subjects of some influences tending to the depravation of their issue, and yet a reference to the tables will show that the percentage of defects to their offspring is not so great as among the children of the consanguinity marriages. Lastly, the sum of results of marriage upon the first table of comparative results, is brought to this second table, and the percentage of defects and deaths carefully computed.

"The classes C, D, E, F, G, of the consanguinity tables, comprise 787 marriages of cousins, 246 of which," (nearly one-third,) "have given issue to deaf and dumb, blind, idiotic, or insane children.

"A very cursory examination of the tables will suffice to show, that *pari-passu* with the increment of the same blood, the sum of defects of the offspring is likewise increased. The increase and diminution of calamities to offspring correspond so closely with the increase and decrease of relationship, as to fix the conviction firmly in the mind of the reporter, that multiplication of the same blood by in-and-in marrying does incontestably lead in the aggregate to the physical and mental depravation of the offspring. And if we admit the above statement, which the observations here presented abundantly prove—that defects of offspring multiply precisely as we multiply the same blood—and to this admission join the fact that all those contingent circumstances of parental health, habits, proclivities of constitution, sexual incongruity, etc., are as liable to affect one class as another, we can not rationally assign these effects to any other influence than that of consanguinity."

The tables containing the details of the marriages reported occupy 92 octavo pages. For the purpose of giving those readers of the Journal who may not have seen them, an exhibit of the results they exhibit, the table of aggregates, and the comparative tables I. and II., are given entire; and to give a still clearer impression of the fullness of the originals, classes A and B are copied, with the omission of only a few of the items contained in the original tables.

Table of Aggregates.

Classes.	No. of cases in each class.	CHILDREN. Number and Classes. Number.	Males.	Females.	Defective.	D. & Dumb.	Blind.	Idiotic.	Insane.	Epileptic.	Scrofulous.	Deformed.	Died young.	CHILDREN. Per cent. in each Class. Defective.	D. & Dumb.	Blind.	Idiotic.	Insane.	Epileptic.	Scrofulous.	Deformed.	Died young.	Sterile.	Marriages. Av. No. of births to each.	Av ge No. to married before 1835.	No. of male children to each 100 females.
A.....	10	31	15	10	29	....	..	19	..	1	5	11	...	93.5	....	..	61 2	....	03.2	16.1	35 4	....	..	4.5	4.44	150.
B.....	12	53	17	14	40	1	3	3	1	1	12	14	23	75.4	01.9	05 6	05.6	01.9	01.9	20.7	26.4	43.3	3	4.41	7.5	121.
C.....	61	247	113	83	126	10	12	30	3	4	44	9	70	51.0	04.2	05 1	12.8	01.2	01.7	18.8	03.8	26.9	4	4.17	5 6	141.
D.....	27	154	47	51	42	2	2	4	6	2	10	2	55	27.2	01.2	01.2	02.5	03.8	01.2	06.3	01.2	35.0	..	5.7	6.2	92.
E.....	600	2,869	1,069	1,041	822	119	64	239	26	44	197	53	665	28.6	04.2	02.2	08.3	00.9	01.6	06.2	01.9	23.1	43	4.8	5.96	104.5
F.....	120	549	255	226	74	9	5	19	1	6	17	9	92	13.5	01.7	00.9	03.4	00.2	01.1	03.1	01.7	16.7	8	4.58	5.4	110.9
G.....	13	71	33	38	18	3	..	2	1	2	10	..	9	25.0	04.2	....	02.8	01.5	02.8	14.0	....	12.6	..	4.91	5.85	103.4
H.....	30	143	30	41	29	5	..	7	2	..	17	..	12	20.2	03.4	....	04.8	01.4	....	11.8	....	08.4	1	5.0	...	.....
Totals....	873	4,161	1,579	1,504	1,180	149	86	323	40	60	312	98	926	28.3	03 5	02.0	07.7	01.0	01.5	07.5	02 4	22.3	59	4.46	.....	.....

The numbers in some of the above classes, and the totals and percentages, have been changed to correspond with the whole numbers given in the details of the several classes.

The isolated observations on the table on the next page are brothers and sisters of parties who have married their kindred, and whose cases are detailed among the statistics in the full report.

TABLE I.—*Comparative results of Marriages between parties not previously related, or known to be the descendants*

TABLE I.—*Comparative results of Marriages between parties not previously related, or known to be the descendants of relations.*

PARENTS.			CHILDREN.								
No. of observations.	Health, habits, temperament, etc.	Residence.	Number.	Males.	Females.	Defective.	D. & Dumb.	Idiotic.	Epileptic.	Died young.	General condition, etc.
1	Both healthy.	Ky.	6	5	1	..	..	..	..	..	All healthy and sprightly.
1	Both healthy; M. billious; F. sanguine; in easy circumstances.	Ky.	8	3	5	1	..	..	..	2	The female who died had curved spine; others normal and healthy.
1	M. of good health; sanguine; had three different wives; one feeble, others healthy.	Ky.	12	..	..	..	..	..	..	..	All good looking, intelligent and healthy.
1	Both good health and habits; M. billious; dark hair and eyes; F. sanguine lymphatic; blue eyes, fair skin and hair.	Ky.	8	4	4	..	..	..	..	1	All healthy, well-formed and intelligent.
10	These couples were from ordinary circles in life, in and around a small village.	Tenn.	83	38	45	..	..	..	..	23	All well-formed, survivors healthy except one who is consumptive.
10	Taken from ordinary circles in and around a flourishing city.	Ind.	71	32	39	..	..	..	..	8	Not an instance of physical deformity or mental imbecility among them.
15	Taken from ordinary circles in and around a small town.	Mo.	111	55	56	..	..	..	..	20	Survivors well-formed; usually well-endowed.
10	Taken as the preceding, in and around a village.	Ohio	68	40	28	..	..	..	..	7	No physical or mental defect among survivors.
15	From ordinary circles in a city.	Wis.	74	42	32	..	..	..	..	15	Three of the defective have difficult articulation; one insane.
20	All farmers except two or three.	N. J.	143	86	57	12	3	5	.		
10	All from the country; mostly farmers.	N. Y.	68	37	31	1	..	..	1	16	One blind, epileptic and scrofulous survivor.
10	From ordinary circles in and around a village.	Vt.	59	36	22	..	..	..	..	6	Survivors well-formed and healthy.
10	From ordinary circles in and around a village.	Vt.	55	26	29	3	..	..	2	11	One survivor had chorea, his father a drunkard; others healthy.
										14	One has rachitis; some rather dull; none idiotic.
1	Both good health; M. light hair and blue eyes; F. red hair and blue eyes; good habits.	Ky.	6	2	4	..	..	.	..	..	All normal and healthy, with bright minds.
10	From ordinary circles near a small interior village; mostly farmers.	Ky.	65	38	27	1	..	1	..	11	One became insane; none deformed; all arrived at puberty.
125			837	444	380	18	3	6	3	134	(Only 1 blind, 1 insane, and 1 scrofulous.)

TABLE II.—*Comparative results from the Ohio Report and other sources.*

CLASSES.	No. of cases.	No. of children.	Defective.	Deaf & dumb.	Blind.	Idiotic.	Insane.	Males.	Females.	Av. No. births to each marriage.	Per cent. Defec've	D. & d.	Blind.	Idiotic.	Insane.	Defects congenital	Defects not congenital.	Defects not known.	No. of males to 100 females.
A. Parent and child	3	3	3	..	..	3	...	1	2	..	100.	.....	.....	100	.....	3	....	....	.....
B. Uncle and niece	1	12	2	..	..	2	....	1	1	12.	16.6	.....	.....	16.6	.....	2	....	....	.....
E. First cousins	47	321	84	32	16	33	5	29	36	6.8	26.1	09.9	04.9	10.2	.....	48	18	18	80
F. Second cousins	28	150	43	13	10	15	7	21	16	5.3	28.6	08 6	06.6	10.0	.....	19	9	15	131
C. Third cousins	4	35	5	2	2	1	1	.....	.....	8 2	14.2	05 7	05.7	02.8	02.8	...	.....	.....	.....
H. Cousins	72	500	107	36	21	39	12	54	36	6.9	21.4	07.2	04.2	07.8	02.4	81	10	16	150
Totals	155	1021	244	83	49	93	25	106	91	6.5	23.9	08.1	04.8	09.1	02.4	153	37	49	116
1st. 100 families	100	708	148	52	17	70	9	....	...	7.08	20.9	07 3	02.4	09 8	01.2	148	....	....	.....
2d. 100 families	100	667	119	40	6	67	8	60	55	6 67	16.3	06.	.....	10.0	01.2	119	....	....	109
Totals	200	1375	267	92	23	137	17	60	55	6.8	19.4	06 6	03.2	09.9	01.2	267	....	....	109
125 families not related	125	837	18	3	1	6	1	444	380	6.69	02.13	003.4	001.14	007.1	001.14	12	3	3	116.8

CLASS A.—*Instances of Marriage or incest between Brother and Sister, or Parent and Child.*

Cases.	PARENTS. Occupation, health, habits, relationship, etc.	When married—age.	CHILDREN. Number.	Males.	Females.	Defective.	Idiotic.	Scrofulous.	General condition of children, etc.
1	M. Farmer; both of good constitution and habits; half brother and sister	1840. M. 21. F. 17.	7	6	1	7	1	..	Six cannot speak so as to be understood except by the family.
2	M. Farmer; both healthy and good habits; half brother and sister	1840. M. 25.	5	2	3	5	5	3	One, epileptic also.
3	M. half brother to his wife	.....	1	..	..	1	..	..	One blue and one black eye.
4	Children of same father; M. legitimate, F. illegitimate.	1835.	5	..	..	5	5	..	Three complete idiots, the other two imbeciles.
5	M. not healthy, F. robust; full brother and sister:—incest	1837.	1	..	1	..	..	..	Now 20, and is healthy, bright and active.
6	Full brother and sister, both finely developed and handsome, with dark hair and eyes, resembling greatly—incest	1846. M 20. F. 14.	1	..	1	1	..	..	An albino, of delicate constitution, not deficient in mental endowments.
7	M. Farmer; children of same father, one legitimate, the other not	1835. young.	7	3	4	6	6	..	Six have 6 fingers on each hand and 6 toes on each foot, and are otherwise "hideously deformed."
8	Both good health, full brother and sister—incest	1836. young.	1	1	..	1	1	..	Now an adult, but a mere pigmy in size.
9	Both supposed to be healthy, father and daughter—incest	1830.	2	2	..	..	..	2	Twins, having pelves resembling females; feeble.
10	M. Lawyer, of excellent health and intellect, and good social position, seduced his grand-daughter, then a model of female beauty and good mental endowments.	1827. F. 17.	1	1	..	1		..	His extremities longer than natural, movements lax and swinging, countenance strange, moral proclivities striking and anormal; now in a poor house.
			31	15	10	29	19	5	

CLASS B.—*Marriage or commerce between Uncle and Aunt, or Aunt and Nephew.*

Cases.	Parents. Occupation, temperament, health, habits, relationship, etc.	When married, age.	Children. Number.	Males.	Fem'ls	Defective.	Died young	General condition of children, etc.
1	M. farmer; sanguine. F. sanguine; both good constitution and habits. F. was husband's maternal aunt	1836. M. 27, F. 28.	4	2	2	2	.....	The two defective are males; one is deaf and dumb, blind, an idiot, and deformed. The females are mediocre in intellect.
2	M. farmer. Both billious, robust constitutions, active, temperate habits. Uncle and niece	1835. M30, F17	7	4	3	.....	1	Nothing remarkable, except one male is ungainly and awkward.
3	M. billious; F. nervous. Uncle and niece. Hitherto sterile	1850. M25, F19	.....	.....	.....	.....	.....	
4	M. laborer; lymphatic, intemperate. F. sanguine. Aunt and nephew	1830. M26, F30	9	5	4	9	9	All were deformed in hands and feet. Cause of death, marasmus.
5	M. farmer. Both lymphatic. Nephew and aunt	1822. M22, F24	4	1	3	3	3	Three very much deformed. The one living has curved spine, and is otherwise defective.
6	M. farmer; nervous. F. sanguine. Both good constitution and habits. Uncle and niece	1827. M. 23.	12	.....	.....	12	.....	One insane, all scrofulous.
7	M. farmer and stone mason. Both billious, dark skin, hair, and eyes; health good, medium size. Nephew and aunt	1837. M. 25, F. 30.	.....	.....	.....	.....	....	
8	Both sanguine, of robust health, now over 70, thin flesh, resemble each other strikingly. Uncle and niece	1810. Both young.	10	.....	.....	10	8	One was blind; one of the living has spinal curvature; the other at 40 is a mere child in intellect, and dependent on his father and deformed brother for support.
9	Both healthy; never before married. M. aged 65, F. 25.	1849.	.....	.....	.....	.....	.....	
10	Both billious, excellent health and good habits. Uncle and niece	1853. Young.	1	1	.....	.....	.....	Healthy appearance, and seems precocious. Had a convulsion at 2½ years of age.
11	M. mariner; nervous, healthy, with active habits. F. leuco-phlegmatic, healthy, but indolent—aunt to husband	1830. M. 20, F. 30.	3	2	1	3	1	All feeble; one died of typhoid fever, one was blind; the female nyctalopic.
12	Both of good health and habits. Germans	Young.	3	2	1	1	1	Males healthy; female never walked.
			53	17	14	40	332	1 [illegible] is blind, 2 idiotic, 1 insane.

The undersigned is collecting materials for a report on marriages of consanguinity in this State, and will be greatly obliged to any physicians who will communicate a full description of cases which may have come under their observation, or which may have been properly reported to them.

A. D. LORD.

OHIO INST. FOR THE BLIND,
Columbus, Oct., 1860.

Interesting Case of Diphtheria, with Post Mortem Appearances.
By Drs. N. GAY and W. H. DRURY.

J. B. Aet. 32 years, a man of a full plethoric habit, was attacked with a sore throat on Monday, September 10th, attended with a severe pain in back and head. The patient, thinking it an ordinary sore throat, paid no attention to it until Wednesday, September 12th, when I was called to see him, and found him with a quick and feeble pulse, and very much prostrated; nails blue and cool extremities; he complained of a severe, burning pain in the region of the larynx, pharynx, and posterior nares. On examination, I found the pharynx and anterior pillars of the tonsils and uvula covered with a greyish white membrane, and extending down into the trachea. The parts were swollen, but not so as to interfere with deglutition. Had slight cough, with some difficulty in respiration. I cauterized the throat with a solution of argent nit., grains xx, to the ounce of aqua distil., and gave him a powder of calomel and rhubarb, 10 grains each, to be repeated in four hours, and ordered a stimulating liniment to be applied to the neck, with an occasional pepper tea gargle. The application of the nitrate of silver to the throat gave immediate relief, and the patient rested quite well until near morning, when I was hastily summoned to see him. Found him breathing with difficulty, and bedewed with a cold sweat; skin cold and blue; feeble pulse, and prostrated; gave him brandy sling, and again cauterized the throat, with relief to the patient. Saw him again at 10 A. M.; he had quite a free operation from the bowels; gave him beef tea, brandy and quinine, with chlorate of potash, five grains every four hours. This treatment was continued until Friday morning, when I again used the nitrate of silver to the throat and larynx. In the afternoon, small pieces

of the membrane and dirty sputa were expectorated quite freely. Early on Saturday morning, croup-like symptoms came on. The patient was sinking; skin blue; extremities cold; gave stimulants quite freely, and applied a solution of warm alum water to the throat, with present relief, and left him under the charge of Dr. Drury, who, about 10 o'clock, took away a membrane which was a complete cast of the larynx trachea and the commencement of the two bronchia. This was a pleasant relief to him. The skin again assumed its natural hue. This same treatment was continued with brandy and beef tea freely. Sunday evening he complained of a tightness and a burning sensation in the chest, about the junction of the second rib with the sternum, and said that he could breathe well to that place, but *there* it was shut off.

On Monday morning, the eighth day of his illness, his skin again became blue and dusky. I examined his lungs carefully, and found the vesicular murmur clear and distinct in some portions of the lung, while at other points it was inaudible. The resonance was increased all over the chest; at the root of the lungs the sounds were those of croup, or, as I might say, of many croups. I had thought of performing tracheotomy, but, from the result of my examination, I supposed it would be of no benefit to the patient. The patient was evidently failing rapidly, and at four o'clock Tuesday morning expired.

Post Mortem.—On opening the chest, as we cut the ribs from the sternum, the chest sprang open on either side three-fourths of an inch, caused by the distension of the vesicles with air. The lung structure proper was healthy. The larynx and trachea were unobstructed. But, from near the commencement of the bronchial tubes to their smallest ramifications, were deposits of the diphtheritic membrane lining them. Many of the smaller bronchial tubes were completely obstructed. In others the membrane was softening, and would have been discharged if he could have been sustained a few hours longer. The pericardium contained a large quantity of serum. The right auricle and ventricle were filled with coagulated blood.

American and Foreign Intelligence.

Researches upon the Erectile Organs of the Female. Translated for the Boston Medical and Surgical Journal. By Wm. Read. M.D.

Erection.—Menstruation.—It is almost superfluous now to remark that a comprehension of the muscular system of the *mesoarium* (ovarian ligament) and the *mesometrium* (broad ligament) results in restoring completely to the type of erectile organs the corpus spongiosum of the uterus and the ovary. Indeed, we have seen that the vessels of the bulb of the ovary and the pampiniform plexus are everywhere interlaced and enveloped by the fibres emanating from the ligament of the ovary and the lumbar ligament; the proper tissue of the uterus incloses by its strong trabecules the canals of the corpus spongiosum, and the efferent sinuses (utero-ovarian plexus) are themselves interlaced by the antero-posterior intersections at the beginning of the great ligaments.

Stronger and more condensed just at the erectile bodies themselves, the muscular fibres become more rare and thinner at the plexus of discharge, an arrangement which exactly corresponds with what we observe in the corpus spongiosum of the penis, and amidst the urethro-prostatic plexus.

In this way the absolute identity of their anatomical constitution, between the corpus spongiosum of the organs of copulation and those of fecundation, allows us upon this basis alone to conclude that they are identical in nature and function; and, if other proof is necessary, have we not, in default of demonstration impossible upon the *living*, the results of experiments on the dead body, which show the possibility of artificially producing erection in those organs which are screened from observation during life, in the same way as in those, the physiological metamorphoses of which it is possible directly to determine?

With the erection of the corpus spongiosum of the uterus, the menstrual hæmorrhage is directly connected.* It is the uterine

* I have found no real erectile systems except in the uterus of the human female, and it is in her alone that we observe a menstrual *hæmorrhage*. As to the females of the quadrumana (*baboons, dog-headed monkeys*), in whom we find a periodic flow of sanguineous mucus rather than a true hæmorrhage, perhaps we shall find in them some rudiment of that anatomical arrangement peculiar to the human female. I have not had any opportunity to make investigations upon this subject, but have seen that in the bitch, which also frequently shows a periodical flow of mucus more or less tinged with blood, the vascular richness of the parietes of the uterus is nothing more than an outline, very incomplete, of erectile tissue.

mucus membrane which furnishes the sanguineous flow, and it is well known that in those females who have died during menstruation, the body of the uterus is turgid, gorged with blood, and very large; it is at this time also, as I have remarked, that the artificial distension of the vessels determines, in the clearest manner, the changes of form, of volume, and of position, which are characteristic of erection. In a word, erection itself is the result of a muscular spasm which prevents the flow of blood back by the efferent sinuses. But we observe that at the *menstrual period*, the muscular apparatus, by which the corpus cavernosum of the uterus and the ovary are controlled, is in a state of spasmodic contraction, and, guided by the well-established coincidence of ovulation and menstruation, we are able to connect them with each other, and deduce from one single primary cause ovulation, erection of the uterus, and menstruation.

At the time of the periodical ovulation of the *Graafian* vesicles, the adaptation of the Fallopian tube with the ovary precedes the discharge of the vesicle, and we have seen it last eight or ten days after the commencement of the heat.

The fimbriated extremity could not remain so long applied to the surface of the ovary, except in consequence of a state of spasmodic contraction in the muscular apparatus which holds it under its control. But the venous sinuses which traverse the meshes of the interlaced fibres at the umbilicus of the ovary, necessarily undergo there a partial compression, the immediate result of which is the distension and the erection of the bulb of the ovary. This accumulation of blood in the corpus spongiosum, and consequently in all the vessels of the gland, is not, doubtless, without influence upon the evolution of the vesicle, and hastens the maturation of the ovule.

These modifications of the circulation of the ovary have a forced reaction upon that of the uterus; the communications of the uterine plexus with the ovarian veins are so large and so numerous, that the pampiniform plexus should evidently be considered as one of the channels of discharge, and the main one even, of the corpus spongiosum of the uterus. The result of this is that the obstacle to the flow of blood through the canals of this plexus should find in the body of the uterus a condition analogous to that which manifests itself at the bulb of the ovary. The erection of these organs is the forced consequence of the same cause.

It is, moreover, probable that at the period of ovulation the fibres of the mesometrium (broad ligament) which embrace all the veins of the uterine plexus, those which empty themselves into the hypogastric veins as well as those which communicate with the ovarian plexuses, are also under the influence of this excito-motory cause which determines the spasmodic contraction of the ovario-tubal fibres, and that all the channels of discharge of the uterus are in the most favorable conditions for the distension of the corpus spongiosum.

The principal cause of the erection being the same with that which determines the adaptation of the fimbriated extremity to the

ovary, the two phenomena ought to have the same perceptible duration. The increased tension in the erectile formations, being prolonged, finishes by communicating itself, by degrees, to the vessels of the mucous membrane, and to the capillaries which ramify at its surface under a simple layer of epithelial cells; the desquamation of these cells, shortly leaves the thin membrane naked to the origin of the capilliaries in the walls; these, too, yield at last, break, and the sanguineous exudation oozes from the surface of the mucous membrane, as long as the erection persists, and as long as the obstacle remains* to the free flow of blood by the veins.

If the erection of the ovary is not, like that of the uterus, accompanied with hæmorrhage, it is because the tunica albuginea and the stroma also of the ovary, much more resistant than the uterine mucous membrane, do not take on an exaggerated distension of their vessels. In certain abnormal cases, however, the ovarian erection may be the cause of hæmorrhage, and this, doubtless, is the most frequent, if not the sole origin of retro-uterine hæmerocele. Sometimes the hæmorrhage occurs in the peritoneum, and then, oftenest, has the ovary itself for its point of issue, which, I myself, as well as other observers, have seen englobed in the parietes of a cyst and communicating with the hæmorhagic focus by a rent in the tunica albuginea.

It is probable enough that in such cases the blood proceeds from the vessels in the pedicle of one of the Graafian vesicles,† or rather

---

*Circulation is not interrupted during erection. The arteries, which by their less volume escape the compression which the veins that surround them undergo, continue to convey the blood into the corpus spongiosum, which becomes distended, and the overplus of which only escapes by the channels of discharge, or by the accidental orifices of broken capillaries. According to Debrou, "Gangrene would be the inevitable consequence of an indefinite stasis of the blood. If erection continues a great while, many hours, it is very necessary that as much blood should flow out as enters, in order that gangrene should not supervene. But, if as much blood flows out as enters, in a prolonged erection, it is necessary to admit that it is the same in ordinary turgescence, *a proposition which is irreconcilable with all the theories of erection in consequence of a mechanical obstacle to the flow of venous blood.*" This objection is specious (it means little more than the theory of erection by the action of *sexual hearts* (Kobelt) escaped there, for this theory is false or exceedingly incomplete); but it is, it appears to me, very easy to refute. When the contraction of the muscular network determines, not complete occlusion, but diminution only of the calibre of the veins, the arteries freely throw into the areolar spaces a quantity of blood, at least equal to that of the ordinary circulation, and *more considerable* than that which actually flows out by the veins, *as long as the distension of the erectile organs lends itself to increase the capacity of the vascular reservoirs.* But as soon as the erection has reached its highest limits, the resistance of the parieties and the tension of the liquid in the interior of the corpus cavernosum, no longer permits the arteries to throw in a greater quantity of blood than is *exactly equal* to what the channels of discharge allow to pass off. This partial circulation being thus spontaneously and forcibly regulated and restored to an equilibrium, continues in this new way as long as the erection last.

†In a case reported by Prost (De l'hematorele retro uterine. Theses de Paris, 1854), the origin, the time and the cause of the haemorrhage also correspond with the subsequent evidence derived from an examination of the parts; I saw, says he, the tumor, formed partly by the ovary, and partly by the tube, very

from a recent corpus luteum, which rupture under the effort of the erectile tension, and offer to the blood, compressed and crowded into the corpus spongiosum, a way by which it escapes in a much more considerable quantity than would have taken place under the ordinary conditions of the circulation.

When the hæmorrhagic focus has its seat in the substance of the broad ligament, it produces during life an accident extremely frequent; and also, when we undertake, by the aid of an injection thrown in by the ovarian veins, to bring on artificial erection of the bulb of the ovary, a rupture of sinuses, having extremely thin walls, in the pampiniform plexus, or in the corpus spongiosum itself.

But what is very important from our point of view is, the well established coincidence* of hæmorrhages from the ovary, with menstruation, with ovulation, and the spasmodic contraction which determines the application of the fimbriated extremity with the surface of the ovary.

The mechanism for producing these accidental hæmorrhages of the ovary (retro-uterine), is identical with that for the uterine menstrual hæmorrhage, an *accident* made *normal* in the human female.†

We can now inquire how the evolution of a Graafian vesicle operates to produce the spasmodic contraction of the ovario-tubal muscles, the essential cause of all the phenomena which we have just passed in review.

---

much dilated and *adherent* to the gland. It is evident that in this instance an attack of phlegmasia, following the haemorrhage, had fixed the tube and the ovary in that position of adaptation in which they found themselves at the moment of the accident.

*M. Prof Langier, in his lectures, and in a memoir communicated to the Academy of Sciences (v. Comptes Rendus, 1858), has applied himself particularly to demonstrate this coincidence.

†In order that the erection of the uterus should give rise to a haemorrhage, certain conditions are necessary, some relating to its duration and others to the intensity of the erection, and consequently to the development also of the erectile formations. If the erection lasts only a short time, or is incomplete, the tension does not exceed the limit of resistance in the vascular walls, and there is no haemorrhage. This is what often takes place at the commencement of puberty, when the erectile development of the vessels of the uterus not being complete, it is yet too far from the true vessels of the mucous membrane to influence them. Erection at that time manifests itself only by a sense of weight, of tension, and uterine colic (spasmodic muscular contractions), and sometimes a mucous exudation, more or less tinged with blood. This last phenomenon is observed in some females of the mammalia, in whom erectile formations are wanting or altogether rudimentary.

We can in the directest manner observe all these peculiarities in the accidental erectile formations at the lower extremity of the rectum. In the beginning there is often nothing more than distension, and swelling of the haemorrhoidal tumors without a flow of blood. Then the dilitation gradually reaching the capillaries of the mucous membrane, the spasm which compresses the venous trunks which go in the thickness of the muscular coats, brings on the rupture of the superficial vessels, and after that time the haemorrhoidal erection is regularly followed by haemorrhage.

The theory of the act of ovulation, is precisely the same with that of the act of parturition, of vomiting, of micturition, &c., &c., and is generally applicable to the normal play of all the muscular systems of organic life. In the case of parturition, when the ovum has attained the limit of its development, it acts upon the walls of the uterus like a veritable foreign body, and the irritation of the mucous membrane or the muscular envelope itself, transmitted to the ganglionic centres of the great sympathetic and the spinal marrow, is *reflected* back to the muscular system of the uterus and the muscles of the abdominal parietes, which concur in an energetic act for the expulsion of the child; and moreover, when the Graafian vesicle has arrived at a certain degree of development the distension of the true fibres of the *stroma* is the initial point of a *reflex irritation* which propagates itself throughout the muscular system of the internal organs of generation, to the mesoarium and the mesometrium.

The ovario-tubal fibres contract, draw near, and forcibly apply the fimbriated extremity upon the vesicle which protrudes, the veins, compressed in the meshes of the muscular net-work, force the blood to flow back and distend the corpus spongiosum, the vessels of the uterine mucous membrane yield, the menstrual flow establishes itself, and all these phenomena last as long as the stimulus continues to act, as long as the parietes of the vesicle resist the double effort of its contents which are increasing in size, and of the enveloping fibres which react against the distension;* whilst at last, the expulsion of the ovule restores quiet throughout the whole muscular apparatus, the course of the blood once more becomes free in the sinuses, the distension of the erectile bodies diminishes by degrees, and the hæmorrhage from the mucous membrane of the uterus arrests itself.† Ovi-position is completed by the migration of the ovum through the channel of the tube as far as the uterus, and from thence externally, if impregnation gives no signal for another series of phenomena.

---

*In the scaly reptiles and birds, the muscular fibres of the mesometrium radiate upon the surface of each vesicle and actively concur in retracting it towards the pedicle, like the dehiscence of the calix, the two hemispheres of which separate just at the stigma. The true fibres of the stroma doubtless play an analogous role in the mammalia, and their influence upon the expulsion of the ovule is much more probable, than that of the pretended suction exercised by the fimbriated extremity.

†The interesting observations of Bischoff tend to establish the fact that the liberation of the ovule takes place only at the end of the menstrual period. When impregnation takes place during this period and suddenly suppresses the bloody discharge, it results probably from the fact that the fecundating coitus, by over exciting the whole genital system, brings about a prompt rupture of an ovarian vesicle. It can also occur when any violent emotion suddenly suppresses the muscular contraction and the ovario tubal erection; a collapse identical with what, under the same influence, suddenly puts an end to erection in man. In this case the fimbriated extremity ceases to be applied to the ovary, the ovule falls into the peritoneal cavity, or, if it has not been fecundated, atrophies and disappears, as we have seen in the batrachians; if it has been impregnated, it gives rise to extra-uterine pregnancy.

We believe that the muscular and erectile system of the internal organs of generation, can be called into play, outside the menstrual period, by excitement which has its origin elsewhere than in the ovary.

Sexual excitement is often, doubtless, in the woman restricted to the erectile formations of the bulb and the clitoris; but it ought, when complete, when the venereal orgasm reaches its highest pitch of intensity, to over-ride these limits, and invade the essential organs of the generative function, in which the *special* voluptuous sensation is developed, which announces the accomplishment of the sexual act. *Kobelt*, who places the seat of all the generative, voluptuous sensations in the papillæ of the gland, was wrong in confounding with those sensations, more or less repeated and prolonged, which develop themselves in the mucous membrane of the organ in a passive state, this unique and instantaneous sensation, which in the man accompanies ejaculation, and in the woman manifests itself as the signal for the venereal orgasm.

Most profound, and all-pervading, it predominates over everything, embracing the whole organism, and presents a striking analogy in its characteristics, if not in its essence, to the gloomy sensations developed in the mental organization by the great sympathetic.

It appears, as far as we can judge by observation, very delicate in such a matter, that it is in the perinæl region, among the pelvic organs even, that the shock of the voluptuous paroxysm is felt, that its centre is among the vesiculæ seminales, and at the verumontanum, (*uterus masculinus*, see my *Recherches sur le type des organs genitaux*, 1855), and doubtless in the woman, at the uterus, and that it announces the participation of these organs in the act which the organs of copulation have only prepared for.

If this be so, if the venereal orgasm in the woman has its seat in the internal organs of generation, we understand the röle which those rich erectile formations ought to play, which so much surpass in their development those of the organs of copulation.

The antagonism evident from the development of the external and internal organs of generation in the two sexes, an antagonism which in the woman is everywhere progressive from the first, joined to the identity of the structure of the corpus cavernosum in both classes of organs, furnishes still another probability greatly in support of the idea that, under the same influences, similar phenomena would there develop themselves.

Erection of the vascular formations of the uterus and the ovary as a consequence of sexual excitement, will explain how. The erection lasting too short a time in this case to exhaust the resistance of the capillaries, and cause a hæmorrhage, is capable, if repeated, of accelerating the return of menstruation, and increasing the duration and quantity of the discharge, as Haller, Burdack, and Parent-Duchatelet have observed in lascivious women and prostitutes, in whom the menstrual flux, sometimes immoderate, could reproduce itself every fifteen days.

Facts observed by M. Coste, relating to the more frequent return of heat in animals in consequence of the cohabitation of the males with the females, and the possibility of impregnation in the human species outside the normal periods of ovulation, also find their explanation in the erection of the bulb of the ovary under the influence of sexual excitement, an erection accompanied by a mechanical congestion of the parenchyma, which would have the effect to determine the maturation of the ovum before the natural term.

The conclusions drawn from the investigations in this essay are:

1st, That in the human female, the body of the uterus presents the structure of an erectile organ, a true corpus spongiosum.

2d, That to the ovary also is annexed an erectile bulb.

3d, That in all classes of vertebrated animals, and particularly in all the mammalia, a special muscular apparatus embraces the oviduct and the ovary, and determines their adaptation.

4th, That the fibres of the ovario-tubal muscular membranes (*mesoarium* and *mesometrium*) have such relations with the corpus spongiosum and especially with their efferent sinuses, that, at the moment of contraction, the meshes of the network, in the midst of which the venous channels run, tightening themselves on all sides, the latter would necessarily find themselves compressed, and the flow of blood more or less obstructed.

5th, That this contraction of the ovario-tubal muscular apparatus lasts through the whole period of ovulation, and the obstacle to the flow of blood, and the erection of the corpus spongiosum of the uterus and the ovary, which is the result of it, have the same duration,

6th, That menstruation also, on the other hand, coinciding with ovulation, it is natural to consider that as the immediate consequence of the uterine erection; a true menstrual hæmorrhage, moreover, not showing itself unless in the place where this organ presents a structure really erectile.

7th, That if sexual excitement can, as appears probable, determine the erection of the uterus and the ovary, it is easy to account for its influence in shortening the periods of menstruation and ovulation.

Diphtheritis. By C. A. HARTMANN, M.D., Cleveland, Ohio.

The disease now generally designated by this name has been brought forward as a new affection, and largely discussed during the last two years, especially in France, England and America. It appears to have been frequently confounded with croup, gangrenous and scarlatinous angina, and other affections of the throat; even Bretonneau, who principally initiated, in 1821, the recent consideration of the disease, did not distinguish it clearly, giving it the names

diphtherite, croup, angine malgine, angine gangreneuse, promiscuously. According to him, it is the same with the *Egyptian disease* of the Greeks. Dr. Baird had previously in this country recorded the particulars of an epidemic that occurred in New York, in 1771. He described it under the name of *suffocative angine.* Other older names applied to it are *cynanche maligna, scarlatina anginosa,* (in America often used up to the present day,) *morbus strangulatorius* (Dr. Starr, 1748,) *Fothergill sore throat, throat distemper, malignant sore throat, malignant angina, membranous angina,* etc.

Hippocrates seems to have been acquainted with it, and a very good description is given by Aretæus. Since then there is no record pointing to diphtheritis until the days of Cullen, Huxham, Fothergill, Star, and others, in the second half of the last century; and although they described it as a "new and separate disorder," it fell again into neglect, until more recently the notices of Baird and Bretonneau were followed by a very extensive epidemic appearance of the disease, it spreading, between the years 1818–57, over France, since 1857 over England, and since 1845 over this continent.

Besides the general name, *diphtheritis, diphtherite, diphtheria,* (meaning an exudation in patches.) a large number of designations are found in the works of recent writers. It is the *angina diphtheritica maligna* of Trousseau; *angina couenneuse* of Duche, Bouchut, and other French authors; commonly called *diphtherie,* in French; the *plastic pharyngitis* of Porry; the *membranous disease,* commonly called *membranous croup,* of Cotting; the *hog-skin angina* of Palmer; *diphtheric, membranous, pseudo-membranous, putrid, malignant,* and *epidemic sore throat, scarlatina,* or *epidemic angina, malignant cynanche,* of other American physicians. Some call it simply *sore throat.*

Diphtheritis proper is an eminently fatal, mostly epidemic, but not unfrequently sporadic disease, of a very peculiar character, appearing with a great variety of symptoms, but presenting, as general features, a marked prostration of the nervous system, and the formation of a pseudo-membranous exudation, which always commences with patches upon a congested surface, and manifests a particular propensity to attack the mucous membrane of the fauces, spreading downwards and upwards; it is, however, occasionally seen upon other mucous membranes, and even upon the skin. Children suffer particularly, but young persons and adults are not exempted from attacks of the disease.

The symptoms, not only at different times and in different locations, but during the same epidemic and in the same place, are so variable that it is difficult to give a description of them of any general applicability. "In not two cases, says one author, "is there a perfect resemblance, either in the grouping of the symptoms, in their order of succession, or in the degree of their individual symptoms." Some cases commence with fever; in others there is none, or it only appears after some time; there may be a diminished secretion of urine, or not; albuminuria is often present, but frequently

wanting; so it is with headache, difficult respiration, diarrhea. Some of the more constant symptoms are general malaise, impaired deglutition, and a very weak, accelerated pulse. One fact seems to be pretty well established: The statements of Trousseau and others show that the disease since 1846 assumed a more violent and malignant character, entirely different from what it was in the time of Bretonneau.

The last named physician gave the following description: The disease usually commences in one tonsil, seldom in both; slight fever; white spots on the affected tonsil; enlarging of the cervical glands. Redness surrounds the concretion, and it spreads rapidly to the velum palati, uvula, the other tonsil, and the pharynx. The swelling of the lymphatics either subsides or remains stationary. After some hours or days a ringing cough, dry, or accompanied by a frothy expectoration, announces the extension of the disease to the respiratory organs. There are now irregularly-shaped patches of redness, without swelling, coated with a concrete exudation. One or more long, narrow, red streaks extend to the pharynx or trachea; a stripe of concrete matter is seen on the centre of each of these streaks, and small, semi-transparent vesicles often appear in the substance of these incipient concretions. The edges of the pellicle are gradually lost in the surrounding mucus, which is no longer viscid, but coagulated near the concretion. The latter can be easily detached; it is, however, in such case speedily reproduced being now firmly adherent, often several lines thick, and changing its color from a yellowish-white to yellow, gray, and finally to black. The subjacent surface is usually of a slightly red tint, more vivid at the periphery of the patches, and sown all over with points of a deeper red color, through which points the blood readily transudes. Now the alteration of the organic surfaces becomes more manifest; often concrete matter is deposited into the very substance of the mucous membrane; there is a slight erasion, and sometimes echymoses, in points exposed to friction, or from which the avulsion of the concretions has been attempted. The corrupted exudations exhales an infectious odor. If circumscribed, they appear depressed, from the œdematous swelling of the surrounding cellular tissue; if they are, on the contrary, extended over considerable surface, they become partially detached, and hang down in shreds more or less putrefied, simulating the last stage of sphacelus.

Dr. David Wooster, of San Francisco, remarks on this (*Pacific Med. and Surg. Jour.*, May, 1859,) that "no vesicles have ever been observed in the forming concretion on this continent; that here at the incipient state the false membrane adheres most tenaciously, and is not easily detached; that the edges of it shade off so insensibly into the natural aspect of the neighborhood as to render a rigorous definition of its limits impossible; that the centre of the patch is whitish or grayish, and opaque, while its periphery becomes more and more translucent; further, that the affected parts never bleed, except when violence is used to tear or scrape off the false membrane, and then the bleeding stops with remarkable

promptitude, and does not occur again, except on the repetition of the violence." Wooster states, also, that "our false membrane never becomes black; indeed, it is paler after than before death."

According to Dr. W. G. Dyas, (*Chic. Med. Jour.*, Oct., 1859, to March, 1860,) there are at least four distinct forms under which the disease may appear:

1. "It may destroy life in a few hours, by a violent and deep impression on the nervous centres, attended by congestion of the internal organs; in this form we may not be able to witness the pseudo-membranous exudation, supposed to be pathognomic of it." There may be, corresponding to occasional violent cases of scarlet fever, "a deadly pallor of the surface, a dusky hue of the countenance, and particularly of the lips, a soft, irregular pulse, tongue moist and livid, pupils dilated, drowsiness, urine limpid, often suppressed; no complaint of local pain, and an air of indifference when roused from stupor. In such cases death will take place within four hours. This form of diphtheria is rare."

2. Another form, scarcely less malignant, is more frequently met with. "The subject of it, generally a child, perhaps retires to rest apparently in its usual health. In the middle of the night, or rather towards morning, it awakes with a sense of distressing nausea, followed by vomiting of a thin, whitish, glairy fluid. Then there is a purging of something similar, but particularly offensive. The child most probably does not complain of uneasiness in the throat; he is drowsy, and seems disinclined to answer questions. The face is pallid, and the expression altered. On examination, we are struck with a shining crimson appearance of the mucous membrane of the fauces. From the velum a tenacious, thin sheet of translucent mucus hangs like a curtain over the base of the tongue, the papillæ of which are tumified, its surface dry, clean and red. The pulse is rapid, irregular and compressible. The skin may be warm, though more generally it will be found cool. After a lapse of some hours reaction takes place; and now there is a difficulty of deglutition. Drowsiness is succeeded by delirium; respiration is more frequent. The neck is swollen, hard and tender, chiefly in the parotid and sub-maxillary regions. The anterior half of the tongue may be clean, but posteriorly it is coated with a thick fur, which sometimes is continued to its tip. The whole of the fauces is covered with a deposit like wash-leather. One or both tonsils swelled; breath offensive; a thin sanies issuing from the nares. There may be epistaxis and bleeding from the gums. At first, the urine is limpid; but should the attack not terminate in death within twenty-four hours, it becomes more colored, and there will be a deposit of lithates; at a later stage it is albuminous, and contains the coloring matter of the blood; petechial spots form on the surface, diarrhœa sets in, or if it has been persistent from the beginning, the discharges become altered in appearance, being like what we occasionally see towards the close of dysenteric cases: serous, like the washings of flesh, and accompanied by intolerable fœter. The surface grows cold, and either coma or a tetanic convulsion terminates life, gener-

ally within four days. Few cases of this kind escape; and fortunately it is not the usual type of diphtheria, even when malignant."

3. "The malignant form most familiar with practitioners commences with a sense of lassitude preceding a variable amount of fever and slight soreness of throat. The pulse becomes rapid, small and compressible; the tongue is covered with a thick, yellowish, dirty-brown coat; the uvula, velum, and pharynx are at first of a dusky red; deglutition is painful and difficult; the neck, about the parotid and sub-maxillary regions, swells; from the nose distils an acrid humor; the voice changes; the breath grows fetid; the breathing, from mechanical obstruction, is stertorous; there is much thirst, and there may be vomiting. In some hours the erysipelatous hue of the fauces is replaced by a deposition, as if, as Dr. Blount expressed it, a thin layer of pie-paste was spread over the parts, the edges being thick and abrupt. The urine is scanty and albuminous; debility increases, and the patient sinks exhausted, often retaining to the last the intellect in its integrity. This is the most frequent mode of accession, progress, and termination of malignant diphtheria, and its duration is generally from eight to ten weeks."

4. "The next variety of the disease is what has been termed croupal. In some epidemics, this has been the prevailing type. It does not appear to be attended with the same oppression of the system of those already described. A sense of constriction in the larynx is an early symptom; the accompanying fever is generally sthenic in character, though some such cases have not presented, from beginning to end, pyrexia. The false membrane rapidly extends to the respiratory organs; there is a hoarse, barking cough, with occasional paroxysms of suffocation, and death takes place by asphyxia."

5. "The form most frequently appearing in this country is of a more gradual invasion, and commences with symptoms of catarrh; coryza, slight fever, with headache, and a pain in one or both ears, usually usher in the attack. There is some soreness of the throat, without swelling either of the fauces or the glands externally. The appetite is often scarcely lessened. There may be diminished energy, but not so much as to prevent the patient from attending to his usual pursuits. The fauces, on examination, will present one or more insulated patches of a grayish-white pseudo-membrane, not so defined at the edges, nor bordered with the same distinct redness as in the malignant variety, but more shaded off. In this form, which lasts from five to ten days, there may be some albuminuria; and even after the more prominent signs of the disease shall have passed away, albuminuria may for a variable length of time be persistent, and accompanied by an anæmic state of the system."

Dr. John H. Hollister, of Chicago, attributes (*Chicago Medical Exam.*, March, 1860,) the various modifications of the disease to the different physical conditions of those suffering from it. The sthenic form, for instance, presents inflammation of the most decided sthenic character, with remarkably plastic effusion, resulting in the formation of firm and thick false membrane. In one case, this

pseudo-plasma was found so perfectly developed as to give, after expulsion, a perfect cast of the trachea and bronchial tubes to a great extent. An asthenic case, on the contrary, may be marked by nothing but a croupy cough, continuing, without any other disturbance, for a number of days. The fauces will be found affected by congestion of a passive character, the tonsils much enlarged, and the whole of the mucous membrane in the posterior part of the mouth of a dark, livid color. Slight secretion of mucus; labored respiration. Soon the affected parts change in appearance, become covered with an abundant sanious discharge, asphyxia develops itself, and the patient sinks in a few days.

Prof. Alonzo Clark, in his lecture on diphtherite, before the College of Physicians and Surgeons, of New York *(Med. and Surg. Reporter)*, divided "all the modes of invasion peculiar to this affection" under two heads: those in which the *constitutional symptoms* are active from the beginning, and those in which the disease makes its invasion *very insidiously*, and only becomes manifest by the appearance of a patch of exudation upon one or other of the tonsils, or in the fauces. "In this latter class of cases, the children do not complain of much ill-health; yet it is apparent that they do not feel exactly well, and have, as a rule, not much disposition to play;" they may, however, be found in bed amusing themselves with their play-things. Voice full, perhaps a little hoarse; some coughing; slight glandular swelling on the outside of the throat. A little patch of membranous exudation on the fauces, sometimes surrounded by a venous injection. Pulse not very rapid, perhaps 100; countenance only a little paler than usual; tongue not particularly covered with any coating, nor dry. In such cases a few cold chills may form the first indication of the disease; the constitutional form commences almost invariably with cold chills; there is high fever, and sometimes vomiting, at the very onset.

"The symptoms of membranous disease," says Dr. B. E. Cotting, of Roxbury *(Boston Med. and Surg. Journ.*, Sept. 22, 1859), "are both constitutional and local. The constitutional may be so severe and so rapidly developed as to destroy life before the local have become a source of danger, or they may be so slight as to be overlooked. The local, also, may have the violence, though not the other characteristics of rapid inflammations, or their existence may even be a matter of doubt, until made evident by obstruction, caused by the membrane fully formed. It is a self-limited disease, having its beginning, middle, and ending, as marked and uniform in progress, and as uncontrolled by any means now known, as variola, measles, or any other disease that can be cited. The formation of the membrane (as constant a condition as the eruption in variola) does not always correspond in amount to the severity of the other symptoms, general or local, in this also resembling the diseases alluded to. The membrane may be only a thin film, or it may have the thickness and toughness of moistened parchment; it may cover only a very limited space, or it may occupy the whole mucous surface of the organs attacked. It usually forms gradually,

being at first a very thin layer (not unlike the first coat of white paint on a pine board); then this layer becomes thicker and tougher, day by day, until it reaches its limit. Its progress, so far as it has any, is from above downward; and any deviation from this rule is rather apparent than real. From the outset, however, it generally covers all the surface that it ever will during the attack, increasing only in density. Its thinness may prevent its being early noticed on parts within sight, though clearly visible at a later period of the disease. During its formative stage it remains firmly adherent to the mucous tissue beneath it, so that it is impossible to remove it, even by the most careful dissection. As soon as this stage is completed, usually in four or five days, the membrane begins to loosen from its foundation, and soon becomes entirely separated; it then creates sufficient irritation and cough to cause its expulsion. Sometimes it is cast off without observation, while at others its ejection is attended with convulsive efforts of the greatest severity. If a portion is artificially removed, previous to this natural separation, another forms in its place."

The false membrane exists in all cases of diphtheria, affirms Dr. Dyas (l. c.), except in those extremely rare ones wherein the system is at once overwhelmingly oppressed by the attack, and life is extinguished ere time is given for the usual characteristic phenomena to be fully developed. It appears very early, within eight-and-thirty hours from the beginning of the disease, generally on one tonsil, or rather in the sulcus between the anterior pillar and tonsil, like a stain left by nitrate of silver on a mucous surface—a pearl-colored spot on a red ground. Sometimes it appears first on the uvula or velum. It extends more or less rapidly, so as often to cover the tonsils, uvula, velum, pharynx, pillars of the fauces, and base of the tongue, with a continuous layer, in from twenty-four to forty-eight hours. It may pass along in the respiratory passages to the bronchial tubes, and even down to the œsophagus—according to some, as far as the cardiac orifice: it has been found following the nasal ducts to the conjunctiva. The mucous membrane of the cheeks and gums, the cutaneous surface, the vulva, and the anus may be its seat. Hence the terms faucial pharyngeal, pharyngo-laryngeal, or croupal, laryngo-tracheal, buccal, vulval, cutaneous, pharyngo-cutaneous, laryngo-cutaneous diphtheritis. Several of these forms have happened in the same family nearly at the same time, showing that the distinction is immaterial.

Generally the thickness of the membrane increases with its area; this, however, varies from the thinnest imaginable pellicle to two or three lines. It may be firm, or a mere diffluent pulp. Sometimes it is in distinct, dull white patches; at others it is confluent. Occasionally it assumes a light buff, yellowish, ash-colored, or even black appearance.

Diphtheritis may run its course, from beginning to end, to recovery or death, without a single pyrectic symptom; when fever accompanies it, the type of it is not always the same, although the tendency is usually to the typhoid. In this country the attendant

fever has been frequently of an intermittent character, probably in consequence of prevailing malarious influence; if so, the intermittent ought to be considered as a complication, rather than a modification of the original disease.

Among other complications observed are measles, scarlet fever, small-pox, whooping-cough, gastric fever, gastro-enteritis, meningitis, and the various diseases of the throat.

Dr. Daviot did not think pharyngeal diphtheritis contagious; and Dr. Cotting also asserts to have seen no evidence that the disease in general is contagious. The evidence so far collected, however, leaves no room to doubt the truth of the remark made in the *London Lancet* (April, 1859), that "contagion plays the principal part in the propagation of diphtheria." Diphtheritic matter, ejected from the mouth of a patient and lodging in the nostrils of the attending physician, has subjected the latter to severe diphtheritic inflammation, spreading to the pharynx, and inducing extreme prostration of the whole system. Quite a number of similar cases are on record. A boy using a bath in which a diphtheritic patient had been previously, contracted the cutaneous form of the disease. If the morbid matter happens to come in contact with an abraded or wounded spot of the skin, the characteristic membrane will arise from that spot, including also the usual constitutional symptoms, and frequently the affection of the fauces.

There are still some other phases of this singular disease to be considered. Even if the patient has recovered from the immediate effects of the attack, and appears completely convalescent, he may, in several weeks, sink and die without any further well-developed symptoms. Latent pneumonia is frequently discovered in the dead body. Amaurosis, strabismus, and presbyopia have been observed as consequences of diphtheritis; but one of its most common sequelæ is paralysis, either partial or general. Two, three weeks, or a month after all traces of the original complaint have disappeared, symptoms of anæmia manifest themselves, and slowly paralytic affections are developed. The first is usually confined to the soft palate, or tongue, characterized by a difficulty of deglutition, and a nasal speech; but this may be wanting. If present, it gives way to more general nervous accidents, sometimes increasing to delirium and convulsions (which must not be confounded with the same symptoms attending the more malignant forms of the disease). But these constitute rather an exception: in most of the cases tending to paralysis, a sense of numbness follows, in one or both arms, the neck, or lower extremities. There may be also vague pains in the back and elsewhere. Now the strength fails gradually; walking becomes more and more painful, until the upright position is impossible. The upper extremities partake in this weakness, the head sinks on the chest, etc. According to Trousseau, the same alternations may be present as in purely nervous affections: the numbness changing from one hand to the other, or the paralysis attacking the legs alternately. In all cases there is an evident affection of the spinal system. Numbness of the cheeks and nose,

or distortions of the face, defective articulation, strabismus, paralysis of the bladder and rectum sometimes supervene. There is no fever, a small pulse, but often a tumultuous action of the heart, with anæmic murmurs. The intellect remains intact, although the mental powers are depressed. Dr. Faure, of Paris, adds that during this paralytic affection sensation is diminished, and sometimes entirely lost, or replaced by formication. In some, sundry parts of the body become œdematous, in others gangrenous; others again are subjected to repeated faintings. If this condition terminates favorably, recovery is very slow, occupying from two to eight months.

Dr. Cooper, of San Francisco Medical Press, (Jan., 1860,) saw many of his patients die suddenly from pyæmia, after recovering sufficiently from attacks of diphtheritis to walk about. In these cases the pulse never arose to its normal standard, and the skin remained colder than natural.

The diagnosis of diphtheritis must be based principally upon the patch-like aplastic exudation, accompanied by marked prostration, and spreading, particularly downwards. Some authors also mention a peculiar "muffled sound of respiration;" with Dr. Cotting this is the principal diagnostic sign. In his words, "It is very difficult to describe the sound. It can only be learned by attentive and frequent observations; yet it is more reliable, and therefore more valuable, than all other diagnostic signs. Once in a while it can be detected before any other indication of the disease is manifested—say in the first two or three hours." The absence of membrane within sight is not always sufficient evidence that the disease is not present. In such cases, the general condition of the patient, the frequent and feeble pulse, and the *genius epidemicus* must be our guides. It is then that the sound so much relied on by Cotting may also prove a valuable symptom.

It can not be difficult to distinguish diphtheritis and scarlet fever, or putrid sore throat, as there is no eruption, nor ulceration and sloughing in our disease; or at least the latter but rarely. More important is the diagnosis between diphtheritis and croup; Bretonneau, Duche, Guernsant, Baird, Barthez, Rillet, Johnstone, and others defending their identity, and simply designating croup as laryngeal or tracheal diphtheritis, or declaring both to be the same disease, only affecting different portions of the same mucous membrane. But diphtheritis is essentially an asthenic disease, affecting the whole system, thus producing a series of constitutional symptoms; it is epidemic and contagious, while croup lacks all these attributes, being only an inflammatory local affection. In croup there is never the swelling of the lymphatics of the neck, which is a constant attendant upon diphtheritis, and the pseudo-membrane itself sufficiently separates the two diseases: the origin from patches, the aplastic nature and its spreading far beyond the air-passages, which become affected merely by confluence, are found only in diphtheritis. Croup is, further, almost exclusively confined to children, whereas diptheritis attacks indiscriminately children,

XUM

adolescents, and adults. Croup is never followed by paralysis, and kills only in one way—by suffocation; diphtheritis may end in the same manner, but it also induces death by asthenia, and months after the disappearance of all exudation, by its effects on the nervous system.

In regard to the prognosis, Dr. D. Wooster thinks the mild variety, or simple form of the disease (confined to the fauces), is easily controlled; but the severe form (combined with constitutional symptoms and extensive exudation), only with difficulty, giving an extremely unfavorable prognosis even at the beginning. The gravity of the prognosis in general may be said to be in proportion to the suddenness of invasion, and the signs of congestion. Good symptoms are: the false membranes ceasing to extend, and detaching themselves in shreds: slight febrile symptoms; absence of stupor; an unaffected pulse; a soft and moderately warm surface; expression not altered; unchanged color of face and lips; neck and papillæ of the tongue not swollen; no œdema of the fauces. In no disease, however, amendment is more fallacious: we can not, either from a particular sign or assemblage of symptoms, calculate with some approximation at certainty what the termination may be. The disease may have commenced without any indication of particular danger, may develop itself in an apparently mild form; and there may even be a manifest improvement in every symptom, the little sufferer perhaps sitting up, smiling, eating, drinking, amusing himself; suddenly croupy symptoms supervene, or reappear to end only with life. The disease has extended from the pharynx to the respiratory passages, and death is the result of asphyxia. This may also be produced without affection of the larynx, either by the swollen condition of the fauces, tonsils and cervical glands, in combination with obstruction of the nares and altered innervation, or by a congested state of the lungs frequently accompanying the malignant forms.

Nausea and vomiting, or convulsions in the beginning of the disease, a rapid extension of the exudation to the posterior nares, a sense of constriction in the larynx, disagreeable odor of the breath, a croupy sound of the respiration, great enlargement of the cervical glands, are among the symptoms of fatal significance.

Life may be destroyed even after the whole membrane has been thrown off. The excessive and unremitting exertions in breathing, caused by the obstruction offered to the free respiration, as well as the intense constitutional disturbance, are apt to exhaust the vital power, without suffocation. Complications generally tend to produce an equally fatal result. The superceding paralysis is frequently but not always removed by a proper treatment.

On the whole, the disease is, as Dr. Wooster says, one of the most decidedly fatal ones. The chance for a favorable recovery among children is about one in three, according to Dr. Cotting; Dr. A. S. Clark thinks nine out of ten cases will recover, even with the malignant form, under an appropriate treatment. Admitting

the influence of the curative means employed, there is still a formidable mortality unavoidably connected with the disease, though the number of deaths varies during different epidemics.

The post mortem examinations usually reveal a deep red or livid appearance of the mucous membrane of the palate, pharynx and adjacent parts, more or less extensive. In most cases the palate, tonsils, upper part of pharynx, epiglottis, bronchial tubes, sometimes the internal surface of the œsophagus, the pituitary membrane, or some of these parts, perhaps the trachea alone, are found invested with false membrane. Seldom gangrene or ulceration is manifest. The lungs may exhibit patches of hepatization or purulent infiltration; and there may be more or less congestion elsewhere. Occasionally, blood is seen extravasated in the muscular tissue of the heart, and the kidneys often bear the marks of disease. The viscera are frequently dotted over with petechial spots.

Dr. A. Jacobi, of New York, declares the diphtheritic membrane homogeneous in structure to the pseudo-plasma of croup; but this seems to be a mistake. The great difference between them is, that the diphtheritic exudation appears to be incapable of organization, and never tends to organic union with the subjacent tissues. Dr. Cotting describes it as of a peculiar structure: a tissue of elastic fibres longitudinally arranged, the fibres smooth, and in no way transversely striated. Great elasticity is one of its characteristics."

Dr. Laycock found a parasitic fungus (oidium albicans) in this membrane, and supposed, therefore, that the disease originated from the parasite; but its presence is thought to be merely accidental.

The nature of diphtheritis is not entirely clear. It is now pretty generally admitted to be a constitutional affection, of an asthenic character, with prominent local manifestations, principally in the throat, resulting in the exudation of an inorganic pseudo-membrane. The disease is the result of a distinct influence (diphtheritic miasm), contaminating the blood, or infecting the whole system with morbid poison. The conjecture of Dr. Dyas, who considers a morbid impression on the par vagum as one of the principal features of diphtheritis, needs confirmation.

In accordance with this view, the therapeutical indications are the elimination or neutralization of the offensive matter, whatever it may be, the correction and mitigation of the local symptoms, and the support of the system, where necessary. Consequently, a general or constitutional and a local treatment is required, with strict dietetic measures.

Daviot, Meigs and others, have practiced general and local bleeding, not without success; the general character of the disease, however, during the last years, and especially on this continent, has been such as to forbid blood-letting in any form; and it is at present looked upon as inadmissible. The croupal form predominating at the time of Bretonneau, seemed to offer an indication not now appearing. The same may be said of mercury, in spite of

the many advocates calomel has found up to this day. Whenever the complaint extended to the larynx and trachea, Bretonneau placed his chief reliance on calomel, in three grain doses every hour, combined with mercurial frictions over the neck, arms and chest, repeated every three hours. The most extensine use of it is made by Dr. I. Meranda, of New Carlisle, Ohio, (*Cin. Lancet and Obs.*, March, 1860.) To the strong, the robust, the plethoric patient, and in cases distinguished by high arterial excitement, he prescribes it with jalap in full purgative doses, following with the usual remedies against high febrile action. To those of a feeble constitution, or where marks of prostration are apparent, he gives calomel in alterative doses, conjoined with opium and ipecacuanha, or with camphorated Dover's powder, until there is an evacuation of green stools. When croupal symptoms snpervene, calomel in small but often-repeated doses is Dr. Meranda's remedy; and in some chronic cases he maintains to have observed the happiest effects follow a moderate sallivation. In a case detailed by Prof. Hollister (*Chic. Med. Ezam.*, Feb., 1860), powders of calomel and ipecacuanha play also a prominent part. Daviot, however, who wrote one of the best monographs on diptheritis, looks on calomel as useless in pharyingeal, but particularly serviceable in the cutaneous variety. Dr. Briggs of Virginia, and Dr. Anderson, of New York, admit it in small doses, two or three grains, the last named in combination with prepared chalk, in slight cases; while Dr. G. W. Claiborne (*Virg. Med. Journ.*, Oct., 1859), declares it to be a good remedy to commence the treatmcnt with and prepare the organism for a tonic course, where "a foul tongue and offensive breath indicate disordered secretions of the primæ viæ." In the opinion of Prof. Alonzo Clark, "the application of dry calomel to the ulcerations of the throat is of decided benefit; but the administration of mercury, with a view of obtaining its constitutional effects, is a doubtful expedient." A similar practice of Dr. Bigelow will be mentioned hereafter. By far the most practitioners think rather unfavorably of mercurials in diphtheritis; and its inefficacy in many cases has been clearly proven. Even as an evacuant, the propriety of administering it in diphtheritis is at best questionable.

The recommendation of cathartics is very limited, Dr. A. S. Clark (*Ohio Med. and Surg. Journ.*, May, 1860), being almost the only one who insists on their use. In mild cases he orders a dose of sulphate of magnesia, or some other saline cathartic; but in cases of high fever, where "an active cathartic" is wanted, "that will stimulate the secretions, and at the same time not depress the vital powers," calomel is given, together with ipecacuanha, carbonate of ammonia, and soda, followed, if necessary, with Rochelle salts, or any other saline cathartics. The drastic cathartics are universally objected to. Dr. S. M. Bigelow, of Paris, in his excellent letter on diphtheritis addressed to Prof. Warren Stone, of Louisiana, (*New Orleans Med. and Surg. Journ.*, Jan., 1860), mentions the citrate of magnesia, six or eight drams, to be

given every two hours until it operates. Equal, if not better, is the advice of Drs. D. Wooster, of California, (*Pacific Med. and Surg. Journ.*, 1859), and Wm. L. Wells, of Wisconsin, (*Chic. Med. Exam.*, April, 1860): to select either the mildest laxatives, or employ injections, so as to move the bowels once a day.

"I protest," writes Dr. Bigelow, "in the most serious manner, against the use of emetics in angine couenneuse," and they are certainly never plainly indicated. Nevertheless, they have been pronounced by some occasionally serviceable at the period of invasion of the disease, especially in young children, and when the false membrane extends to the trachea; others, on a more rational basis, will not admit them, except when their mechanical action might assist in detaching the membrane. In either case, neither antimony nor ipecacuanha should be used, on account of their depressing effects. (Wooster's plan, to commence with ipecacuanha in full doses and repeat them for two or three days, seems not to have been followed any where.) Drs. Meigs and Pollard used alum as an emetic, a teaspoonful mixed with molasses, repeating that dose in the course of ten or twenty minutes, if required. But the turpeth mineral (sub-sulphate of mercury), first recommended by Dr. Hubbard, of Maine, is now acknowledged as the best emetic in diphtheritis. It never induces catharsis, and is not followed by prostration, while it operates promptly and certainly. Two or three grains may be given to a child of two years every ten or fifteen minutes, until vomiting takes place. Both alum and turpeth mineral are well suited to patients above one year; for smaller children perhaps some preparation of squill would be preferable (Dr. Dyas).

The most prominent among the remedies employed as directly counteracting the morbid influence is the chlorate of potash, alone or combined with hydrochloric acid, iron and ether. Dr. Bigelow administers every three hours ten grains of the chlorate and ten grains of the bichlorate, in some convenient vehicle, giving at the same time one tenth of a grain of calomel with sugar, to be put dry upon the tongue, once in one or two hours, or less frequently, sometimes omitting the calomel altogether for a while, according to circumstances. Chlorate of potash with hydrochloric acid has been recommended by Dr. Kinsford (*Lancet*, Jan., 1859); Dr. I. Meranda prescribes two drams of the chlorate with one fluid dram of hydrochloric acid in eight fluid ounces of water, half an ounce to be taken every three hours. This formula was originally given by Dr. Lambden (*Lancet*, Nov., 1858); it contains free chlorine in solution. The chlorate and quinine in full doses constitute the treatment of Dr. Barker, of New York. Dr. Jacobi gives from a half to one dram per day to a child from six months to four years old, three drams to those above that age, continuing for weeks and even months. He usually adds iron, the muriatic tincture in preference. Finding in severe cases the chlorate to operate too slowly alone, he also combines it or precedes it with a few large doses of quinine. The best form, in his judgment, is the solution in water

with the addition of some acid, generally the muriatic. Dr. A. S. Clark approves of the free use of chlorate of potash and sesquichloride of iron in tincture, diluted with nitrous ether, but he prefers the following formula: chlorate of potash, one ounce; syrup of lemons, water, of each four ounces; sulphate of morphine, two grains. Take a tablespoonful every four or five hours.

In Wisconsin, the tincture of the sesquichloride of iron, the hydrochloric acid and the chlorate of potash were given together in a convenient vehicle, or alternately in full doses. Sometimes the tincture of iron can not be borne for many days; then the sulphate of quinine with citrate of iron ought to be substituted (Dr. Wm. L. Wells). The "Lancet Commission" placed the most reliance in a mixture of sesquichloride of iron with chlorate of potash, chloric ether and hydrochloric acid, sweetened with syrup. The chlorate may also be given after the method of Dr. Gardner, of New York, in a syrup saturated with it, a teaspoonful in four hours, alternately with three drops of perchloride of iron in syrup. Nothing else is required in cases without local affection.

Bnt notwithstanding this general adoption of the chlorate of potash, some doubts in regard to its efficacy have been expressed, especially by American practitioners. Prof. Alonzo Clark says it is not, as claimed, a specific in this disease, but still of some benefit, and should therefore form a part of our treatment. In the able article of Dr. Dyas occurs the following passage: "It is very much a matter of conjecture how chlorate of potash acts on the human organism, and on the whole it is doubtful if it possesses a great deal of therapeutic value in diphtheria. It may be prescribed in combination with some bitter infusion (cascarilla, gentian, or bark), in doses of from ten to thirty grains, according to age." Most summarily Dr. Wooster disposes of it: he believes the chlorate of potash harmless, but of unproved efficacy, simply mitigating the fœtor of expiration.

The declining reputation of this remedy is apparently to be transferred to the muriate and sesquichloride of iron, heretofore only employed as adjuvants and tonics. In the latter quality, Dyas speaks of Thompson's bitter wine of iron, containing one grain of Wetherell's precipitated extract of bark and two grains of citrate of iron in a teaspoonful of cherry wine; but some prefer the tincture of the sesquichloride of iron, "ten or fifteen drops every third or fourth hour." Dr. F. Isnard warmly recommends (*Gaz. des Hop.; Amer. Med. Monthly*, March, 1860), the perchloride of iron as specific against croup and diphtheritis. It should be administered as soon as possible, in large doses, and continued at all stages of the disease. Dr. Th. Heckstall Smith, (*Braithwaite's Retrospect*, Jan., 1860), while relying chiefly on gallic acid, found the sesquichloride of iron tincture far superior to any thing; and Dr. W. H. Ranking (*Ranking's Abstract*, No. 29), confirms the value of this tincture as an internal remedy in diphtheritis. If so, the treatment of this disease would be materially simplified; in

most of the present methods too many remedies are administered promiscuously.

In a monograph on scarlatina and diphtheria, (London, 1859), which he considers as one and the same thing, Dr. George Hull praises the sesqui-carbonate of ammonia as a specific, in doses from two to ten grains, every two, three or four hours. Baron treated before him (*Gaz. de Paris*, 5, 1856), diphtheritis with Vichy water and bicarbonate of soda.

A composition called "ferruginated cod-liver oil," has been proposed by Dr. Wooster, two fluid drams with one of brandy, to be taken four our five times a day, or oftener, if the stomach will bear it.

To meet the second indication a large number of topical applications have been employed, without due consideration of the question how far, if ever, it was practicable or necessary to remove the false membrane. Dr. Bigelow always removes with a long forceps, or by scraping, or by any other means, violent or gentle, all accessible portions of it. Dr. Cotting, on the other hand, found that harsh attempts by emetics, probangs and the like, to dislodge the membrane before its natural separation, are often accompanied by fearful risks; and could it be effected, it would involve a reformation, more to be dreaded in the exhausted state of the patient than its first appearing. Dr. Wells also removes the membrane with the forceps, where it can be done, which is rarely the case.

Nitrate of silver in the solid stick, where practicable, or more commonly in strong solution, has been applied most extensively to the throat. Many are of the opinion it could not be superseded by any other local application; such an assertion, however, will not hold good everywhere. The application in substance is stated to have had occasionally the most serious consequences. Twenty, thirty, forty, sixty grains to an ounce of water have been employed, in the beginning as well as in the more advanced stages of the disease. Prof. Alonzo Clark and Dr. Jacobi, considering the application of the caustic to the membrane itself of no special service, only apply it to the parts immediately around the exudation, so as to prevent the inflammation from spreading, and limit thus the further extension of the membrane.

Bretonneau principally depended on the energetic application of concentrated muriatic acid. It has been employed by others, diluted or not, in very young children, mixed with an equal quantity of honey. Equal parts of hydrochloric acid and tincture of myrrh, says Dr. Beardsley, detached the pseudo-membrane most readily, and diminished the liability of its being renewed.

A strong solution of sulphate of copper (one dram to one ounce of water) may also be applied topically. Used in the same manner, some preparations of iron have been found equally useful. The concentrated solution of the perchloride, or Monsell's salt in powder, or the tincture of the sesquichloride, are declared by Wooster, Wells, Beardsley, Dyas, A. S. Clark, and others, to be the most efficacious and valuable of all topical applications.

XUM

Dr. J. J. Morgan expresses a great predilection for a saturated solution of acetate of lead (adding one grain of morphine to the ounce), as a gargle, and to be applied with a sponge, two or three times in twenty-four hours. At least he commences with it in every instance, and if the disease advances in spite of it, he substitutes the lunar caustic in solution.

Tannin has not been tried sufficiently. Dr. Heighway, of Cincinnati, dissolved two drams of it in one pint of glycerine, and applied that solution by means of a probang, with good effect. Tannin may also be used alone.

Particularly destructive to the exudation is sulphurous acid (Dr. Heighway, Prof. Comegys); it is best used in the form of a salt, as the hypophosphide of soda.

Dulmont found (*Gaz. des Hop.*, 47, 1856,) nitrate of silver and muriatic acid insufficient, but lemon-juice, painted over, a good application; Homotte added a little alum. Tincture of iodine has been tried about the same time, without giving satisfaction. Upon experiments made by him, Ozanam based, in the same year, the conclusion that all pseudo-membranous productions are best destroyed by the alkalies and muriatic acid, and soonest removed by bromine and bromide of potash. Thereupon he recommended this bromide or a bromine-water against diphtheritis, croup, and similar affections; but his proposition seems to have met with no favor.

An idea of Dr. A. S. Clark deserves a trial: he thinks glycerine may be employed, in advanced states, between the caustic applications, for its lubricating as well as for its solvent powers.

Strong nitric acid, applied by means of a brush, is the remedy of Prof. Comegys, when there are deep and extensive ulcerations.

Baudelocque used a decoction of bark with chloride of soda as a gargle; Wooster also mentions the solution of chloride of sodium, and Dr. wells asserts that gargles with chloride of soda and chlorate of potash act undoubtedly as a solvent of the membrane. Dr. Roche (*Union Medicale*, No. 88; *N. Amer. Med. Chir. Rev.*, Nov., 1859,) was very successful with injections containing chloride of sodium. He practices an almost continuous irrigation of the throat, by means of Equisier's irrigator, considering the irregation the principal curative agent, and therefore employing indifferently solutions containing salt, alum, or the chlorates.

In mild cases alum gargles as the only local application have proved sufficient. Gargles with alum and red-oak bark are proposed for severe cases; but tannin and alum seem to be useless, at least in Dr. Wells' experience. Baudelocque applied powdered alum to the nostrils by means of a souffloir; Daviot thought it useful only in the early stage of the affection.

A method mentioned by Dr. Perror (*L' Union*, 53, 1856,) has been revived and modified by Dr. Bigelow. Perror blew alum and sulphate of zinc into the mouth several times a day, using afterwards gargles with alum. Bigelow commences his treatment with an insufflation of one drachm of powdered burnt alum, and repeats

that operation as long as a tendency to the formation of the false membrane continues, alternating in the later time with tannin.

When, after a few days, the fauces become so exceedingly sensitive as to give great pain, Dr. G. W. Claiborne (*Virginia Med. Jour.*, Oct., 1859,) used with good success a wash of borax, honey and myrrh.

Dr. I. S. Bristom prefers locally in all cases the employment of mild detergent gargles (*Braithwaite's Retrospect*, Jan., 1860.)

A gentle stimulant, in the form of a mild lotion, say eight grains of iodide of zinc to an ounce of water, is, in the opinion of Dr. W. Judkins, of Cincinnati, all the topical treatment required.

Dr. S. A. Cartwright employs a local application of his own invention, and expresses himself well satisfied with it (*N. O. Med. and Surg. Jour.*, Nov., 1859.) He infuses for several days in one pint of diluted alcohol: finely powdered hydrastis root and the powdered bark of the root of the myrica cerifera, of each one ounce; three ounces of gum myrrh, and two drachms of capsicum. "A piece of wool or cotton (this better,) fastened to a probang, saturated in the above tincture, is the best thing I have ever found to swab the throat with."

Where the running from the nose is very excessive and offensive, a solution of chlorate of potash, or better, of chlorate of soda (Dr. Jacobi,) or Labarraque's solution (Dr. Thomas, of New York,) may be injected through the nostrils.

Fumigating the throat with boiling water and vinegar poured on catnip, and Labarraque's solution of chloride of soda added, is a method practiced by Dr. Gordon Buck, of New York. In two cases treated by Dr. Ribbins, of the same location, inhaling the vapor of warm water seemed to benefit the patient the most. Prof. Comegys testifies to the beneficial effect of inhalations of one ounce of sulphuric ether with two drachms of tannic acid, a cloth being wetted with the solution and placed into the mouth.

The opinions of the profession, divided on nearly every thing connected with the diphtheritis, are most decidedly opposed to each other in reference to external applications. Daviot, for instance, admits rubifacients; Wooster exhorts us never to use liniments or mustard, because they increase the anguish of the patient, and do not mitigate the affection. Baudelocque applied blisters to the thigh; Daviot objects to blisters in general as having the serious inconvenience of adding cutaneous to pharyngeal diphtheritis, and Meranda, who has but little confidence in external applications to the throat, informs us that blisters are especially hurtful. Dr. Beardsley experienced no satisfactory results from external revulsives, and Dr. White, of Cincinnati, declares all external applications in the form of liniments, tincture of idoine, poultices, etc., of no benefit. According to Wooster's directions, in the first stage, while the engorgement is red and hot, cold wet compresses should be applied to the neck; further along, when the engorgement of the throat becomes œdematous, warm fomentations. Dr. G. Hull

orders the outside of the neck and throat to be well rubbed with a strong embrocation of ammonia, camphor and opium. A more extensive course is followed by Dr. A. S. Clark, who carries the thing almost too far: he advocates sinapisms to the legs, feet, hands and arms, external stimulants to the neck, and as the disease advances, fomentations of hops, poultices, etc.

Instead of all these annoying and troublesome appliances, Dr. S. M. Bigelow puts his patients from the beginning into a tepid bath of one or two hours' duration, and has that repeated every two or three days.

There is another feature in the rational treatment of diphtheritis which claims particular attention. The system is to be supported by a free, energetic and persistent tonic or sustaining constitutional treatment, besides the exhibition of general and local remedies as already specified. All authors agree that a vigorous course, with tonics and stimulants, is an imperative requirement. Therefore the most generous diet; strong beef tea, mutton broth, chicken soup, eggs, wine, brandy, and "whatever other form of nutriment the ingenuity of the surgeon or the fancy of the patient may suggest," (Lancet Commission.) "We urged," relates Dr. Wells, "and in some cases forced patients to take nourishment, notwithstanding the loss of appetite, amounting in some instances to a disgust for food." Where a sufficient amount of nourishment can not be swallowed, it must be supplied by injections.

Among the remedies proper, turpentine, camphor, carbonate of ammonia, Peruvian bark, but especially the tinctures of iron and quinine, in doses adapted to the age and condition of the patient, are usually selected. Quinine, with a mineral acid and a little lemon syrup, (Dr. Claiborne,) is a very desirable preparation. Sometimes, however, there seems to be some contra-indication to the exhibition of quinine. "When the tongue is foul and the stomach irritable, it is better to withhold or suspend it. Loss of appetite, soft compressible pulse, tremulous tongue, languor and subdued expression are indications for its exhibition," (Dr. Dyas.) A most comprehensive and impressive description of this part of the treatment is furnished by Dr. Bigelow. He says:

"I commence immediately with the use of tonics, stimulants, and the most nourishing possible animal food. Quinine every three hours in as large doses as can be borne; bitters composed of cinchona, columbo, camomile, quassia, bitter orange peel, etc., formed into a strong infusion, to which I add brandy and a little syrup:

"℞ Cortex cinchonæ flavæ cont.,
Radix gentianæ cont., aa ʒ ij.,
Radix columbæ cont., ʒ ss.,
Cortex aurantii,
Flores anthemidis,
Quassia amara, aa ʒ ij.,
Aqua bulliens, O. ij. M., fiat infusum;
Adde: Spiritus vini Gallici, ʒ vj.,
Syrupus aurantii corticis, ʒ iv.

"D.S. To an adult, one-half to two-thirds of an ounce five or six times in twenty-four hours.

"Strong bouillon of beef, mutton and chicken cooked together, with tapioca or vermicelli as a change, a teacupful every three or four hours, occasionally with a boiled egg. Ale, porter, sherry, brandy and water in such quantities as may be borne. During recovery I add to our already nourishing fluid diet solids, such as beef steaks, roast beef, mutton chops, poultry, game, vegetables, etc. Throughout the whole course of the disease I give an abundance of such fruits as peaches, grapes, apricots, cherries, currants, raspberries, strawberries. Lemonade and morsels of ice as beverage, or soda-water and syrup of raspberries, currants and gooseberries."

A constant supply of fresh air must not be overlooked, nor that all-important care, with the whole train of minor services, usually included in the phrase "*good nursing.*"

A few peculiar methods of treatment remain to be noticed.

During the epidemic in Augusta, in 1848, Dr. Campbell, observing that the accompanying fever was paroxysmal in character, adopted an anti-periodic medication, which proved more successful than the method previously employed.

Dr. C. Swaby Smith, of Burbage, (*Braithw. Retros.*, Jan., 1860,) commences with the application of a strong solution of chlorinated soda to the fauces, and a sinapism to the throat. A gargle, containing two ounces of a solution of chlorinated soda, two drachms of the tincture of myrrh, and six ounces of water, is to be used every half hour. Where the children are too young to gargle, the throat may be frequently washed with the same mixture, by means of a piece of sponge. Internally: chlorate of potash, two drachms; dilute nitric acid, two drachms; Battery's solution of cinchona, one drachm; water, six ounces. About the sixth part (varying according to the patient's age) to be taken every two hours. If there is much pain in the limbs, a few minims of the tincture of colchicum are added, which addition has proved highly advantageous. The diet to consist of strong beef tea, port wine, and all the nourishment the patient can take.

Dr. G. Bottomley, of Corydon, describes (*Braithw. Retros.*, Jan.,) his plan for children as follows:

℞ Solutionis chlorini,
Syrupi simplicis, aa ʒ ss.
Aquæ distillatæ, q. s. ad ʒ vj.

M., fiat gargarisma sæpe utendum.

℞ Solutionis chlorini, gtt. iv.
Syrupi aurantis, ʒ j.
Aquæ distillatæ, q. s. ad ʒ ss.

M., fiat haustus, secunda quaque hora sumendus.

The dose is increased according to age. Calomel in one grain doses and more. Diet: concentrated jellies, strong beef-tea, wine, etc.

Dr. J. C. S. Jennings of Malinesburg, (*Braithw.*, Jan.,) has adopted a rather rough treatment, and institutes it invariably in all cases, regardless of sex, age, or incubation of disease. First, an active emetic of antimonial wine, from half an ounce to an ounce, according to age; then free cauterizations of the throat with solid nitrate of silver; mustard poultice from ear to ear; the feet and legs plunged into a hot bath, and the patient confined to bed. After the operation of the emetic, a cathartic of calomel and compound extract of colocynth; four hours afterwards this mixture:

℞ Quiniæ dissulph, ʒ ss.
Potassæ chloratis; ʒ j.
Acidi hydrochlorici diluti, ʒ ss.
Aquæ, ʒ viij.

M. fiat mistura, cujus sumatur pars sexta quartaquaque hora.

At the same time a gargle of chlorine solution is directed to be prepared frequently, by saturating water with the proto-oxide of chlorine, generated from two parts of chlorate of potass., one of hydrochloric acid, and one of water. The fauces are to be sponged out with this frequently.

Greatly at variance with all others is the method detailed by Dr. B. E. Cotting (*Boston Med. and Surg. Journ.*) While disapproving bleeding, leeches, cupping, blisters, sinapisms, mercurial and drastic purgatives, emetics, cauterizations, he restricts the therapeutical applications to almost nothing. "Mild and nutritious diet, including, if possible, such articles as the patient willingly accepts, is to be preferred to abstinence, certainly to a stimulating course. The inhalation of watery vapor, by an inhaler or other practicable expedient, is often, not always, very agreeable; and if it is not very effective, it is at least without objection. A warm fomentation, or, better still, a warm emollient poultice, covering the whole anterior half of the neck, is probably of service. But above all, anodynes, sufficient to subdue restlessness and insure quietude, are the most important agents. The particulur form is of little consequence. Dover's powder, or an equivalent containing the strength of a grain of opium and a grain of ipecac to the ounce, is a very convenient form. The ipecac, however, is not important. Mucillaginous drinks are generally acceptable." From his own statements, it appears that Dr. Cotting was not very happy with this lenient treatment, as old as the history of medicine thought it to be.

Stranger still, but far more successful, appears a plan which Prof. E. S. Cooper adopted (*Boston Med. and Surg. Journ.*, Jan. 5, 1860; *Pacific Med. Journ.*, Jan.,) after despairing almost of achieving any thing against the fatal disease. With his treatment he lost only one patient out of thirty-one; and this entitles his proposition to a consideration it could otherwise hardly claim, with all its originality. No applications to the throat are used by him. An embrocation of chloroform (three ounces), cod-liver oil (twelve

ounces), and spirits of turpentine (two ounces), is applied freely all over the neck, breast and abdomen, upon flannels covered with oil-silk. For internal use he gives this mixture: Ext. glycyrrh., three ounces; acacia gum, one ounce; antim. tart., one grain; sacch. alb., two ounces; aqua, 18 ounces. Give a wineglassful every two hours to a young child, say two years old, and increase in proportion to age. During this treatment, not a particle of any thing else is allowed—not a drop of water, nor the least nourishment, save what is in the medicine.

Whatever method may be followed, it seems to be essential to continue both general and local treatment for some days after the disappearance of all morbid symptoms.

Experiments with tracheotomy in diphtheritis have not been wanting. On this continent it has been strongty objected to, and is stated to have never been successful. With Bretonneau it was the last resource; he operated three times, saving one patient. In France the operation has been defended and performed up to the present time. Dr. Bigelow follows Trousseau in recommending it, adding that it must be done earlier than in croup, before the vital powers are too low. A method peculiar to Dr. Bigelow is the insufflation of alum into the pharynx, and as far as manageable into the larynx, through the tracheal tubes, immediately after the operation, snd repeated according to circumstances.

In conclusion, the sequelæ of diphtheritis ought to come in for their share of the treatment; but the reports are in this regard almost too meagre. Dr. Bigelow merely alludes to iron tonics, a generous diet, cold affusions, warm clothing, and exercise in open air, for the cure of the subsequent paralysis. In slight cases, sulphate of zinc and quinia have proved sufficient. According to Dyas, the blood must be supplied with its normal proportion of hæmatosin; and this is to be effected through the agency of preparations of iron, with a generous and supporting diet. Sulphur baths, electricity, preparations of zinc and valerian, are occassionally valuable auxillaries. The same treatment will be required for strabismus, presbyopia, and other ailments sometimes following diphtheritis. Dr. Meranda's cure of the first named, by spigelia and calomel (given in consequence of an imagined connexion with worms) was evidently an accidental occurrence. Jackson's compound syrup of phosphates has been reommended, and Churchill's preparations of the hypophosphites may be still better; but the remedy principally to be relied on, as well for the general and local treatment of diphtheritis itself as for all affections following it, is undoubtedly iron.—*Cincinnati Lancet and Observer.*

On the Influence of Valvular Disease of the Heart in promoting Diuresis. By Dr. AUGUST KUHNER. (Archiv fur Physiologische Heilkunde, Jahrg. 1859, Heft 4.)

This paper is written to inquire how far the law laid down by Ludwig and Goll, that the secretion of urine is materially modified

by the pressure exercised by the blood upon the walls of the vessels, is influenced by pathological conditions. Ludwig showed, and his views have been experimentally confirmed by Goll, that the Malpighian bodies offer considerable resistance to the blood-current, as their vas efferens has a smaller diameter than their vas afferens, or than a section of the entire vascular coil; by this means an arrest of the blood and increased lateral pressure are induced, and a larger quantity of water is therefore forced out. Dr. Kühner, at the suggestion of Professor Bamberger, undertook to inquire into the variations that might occur in the amount of the renal secretion under the influence of valvular disorganization. In these cases the blood contained in the heart is subjected to an irregular distribution. and the tension of the arterial system is necessarily diminished. The amount of blood thrown into the aorta at each systole is reduced, or a certain quantity regurgitates. As a smaller quantity of blood occupies a smaller space, and causes a smaller advance of the column of blood, the tension of the aorta and the propulsive power of the left ventricle are also reduced. Hence the circulation is retarded in the arteries, and the impediment operating backwards on the venous system, a further cause of an arrest of the circulation comes into operation, and the veins become distended.

Dr. Kühner analyses these circumstances from the point of view that he takes up, and then examines a series of cases, to ascertain in how far pathology bears out the theory that is implied. He has not, however, been able to make out any definite relation between the renal secretion and cardiac disease, such as would have been anticipated from the previous remarks. The following are in brief the conclusions he arrives at from a careful observation of the actual phenomena:

"Goll's experiments, which demonstrated the important influence exerted by the hæmostatic pressure upon the secretion of urine, are not confirmed as regards valvular affections. The amount of urine secreted bears the same ratio in valvular diseases as in all other chronic affections. It fluctuates in cases not associated with dropsy within the normal limits, or is moderately diminished. As soon as dropsy accompanies the valvular disease, the urinary secretion is diminished by the former in a marked manner, and stands to it in an inverse ratio—i. e., it diminishes as the dropsy increases, and *vice versa*. As the fatal end of the disease approaches, it sometimes undergoes no change; at times it is much reduced."

Case of Chronic Glanders in the Human Subject. By JAMES MORRISON, M.D.

W. T. McGilvray, aged thirty-four years, of a nervo-billious temperament and sallow complexion, had for five years resided in Sacramento, where he had followed the profession of veterinary

surgeon. On the 20th of August, 1857, he made a post-mortem examination of two horses that had died of glanders. As a precautionary measure he covered his hands with collodion, but thought he left one or two slight abrasions unprotected. A few hours after, he was attacked with nausea, vomiting, and a violent pain in the frontal part of the head, accompanied by great prostration of the nervous system. There followed the usual symptoms of violent coryza. There was continual and almost intolerable pain in the frontal sinuses, with a watery discharge from the nose, which soon became thick, viscid, and muco-purulent. When I first examined Mr. McG., on the 20th of October, he complained of violent pain in the frontal part of the head. There was a thick viscid discharge, of a greyish color, from the left nostril, adhering with so much tenacity to the surface of the schneiderian membrane, that it was expelled with the greatest difficulty by almost constantly blowing the nose. He was confined during the greater part of the time to his bed; became soon exhausted when he attempted to walk or sit up. There was great depression of spirits, with unfavorable forebodings as to the termination of his disease. There was excessive wakefulness, loss of appetite, bowels constipated, circulation languid, pulse only fifty-six per minute, profuse night sweats, deafness in the left ear, partial paralysis of the gustatory nerve; said that all things tasted alike; skin of a pale, sallow hue, lips and gums pallid, extreme emaciation, and all the symptoms indicating a cachectic condition of the system A tonic course of treatment seemed to be indicated. I prescribed the citrate of iron and quinine, porter, and a generous diet, embracing such articles as would furnish the greatest amount of nutriment with the least digestive labor. To induce sleep, I directed three grains of cannabis indica to be given at night. This treatment was continued for eight or ten days with apparent benefit. There was less pain in the head, a diminution in the discharge from the nostril, and less wakefulness. There was, however, no improvement in the appetite, and no augmentation of strength. At length, when this treatment ceased to be attended by any salutary effect, and appeared to aggravate rather than allay the severity of the symptoms, I discontinued it, and ordered the iodide of potash and bi-carbonate of mercury to be taken in the compound syrup of sarsaparilla. I substituted the sulphate of morphia for the cannabis indica, as the latter had failed to produce a narcotic effect, though administered in large doses. I also directed a solution of sulphate of zinc to be injected into the nostril. The discharge continued to flow from the left nostril, and remained unchanged and inodorous in its character.

No important change occurred in the condition of my patient until the 10th of December, when a profuse hæmorrhage took place from the nose. He was nearly pulseless before my arrival at his bedside. I plugged the posterior and anterior nares as a precautionary measure, although the hæmorrhage had ceased before my arrival.

This hæmorrhage was followed by a diminution of the pain in the head, but the nasal discharge soon after became purulent, occasionally bloody, and so extremely offensive as to impregnate with its odor not only the air of the apartment occupied, but also the adjoining rooms.

Upon an examination with a probe, the nasal bones were fonud to be carious. The alterative treatment was continued, and as a local application a solution of the chloride of soda was employed.

Without entering into the details of this case, I will state that my patient apparently continued to improve until the first of April. From this time he gradually declined. His appetite failed, he had frequent attacks of vomiting; the functions of animal life became more impaired; the comatose attacks became of more frequent occurrence, and of longer continuance. Ulceration in the roof of the mouth resulted in perforation of the palate bone. The superior maxillary bone became carious, the teeth became loose and dropped from their sockets. The bowels were alternately relaxed and constipated.

During the night of June 23, 1858, a copious hæmorrhage took place from the nose. This was arrested, but recurred on the morning of the 25th, when death came to the relief of my patient.

Twenty-six hours after death a post-mortem examination was made. The thoracic and abdominal viscera were in a healthy state. On removing the scalp, a deposit of tubercular matter was found exterior to the periosteum of the right temporal bone. On the same bone, extending forward upon the os frontis, was a superficial deposit of rough osseous matter. There was a carious condition of the superior maxillary, sphenoid and turbinated bones, and a perforation of the vomer and os palati. That part of the dura mater corresponding to the right temporal bone was greatly thickened and closely adherent. There was softening of the base of the brain, especially of the middle lobe of the right hemisphere.—*San Francisco Med. Press.*

The Utilization of everything for food in China. By the ABBE LE NOIR.

The progress of Chinese civilization cannot be compared with that of Europe. The Mongolic progress takes place, or rather has taken place, with a special characteristic of slowness that has been of value. Agriculture, for example, has so progressed in this immense empire, through the system of small patriarchal estates, that no country on the globe can contend now with China in the abundance of its agricultural products, although this does not prevent, in consequence of the enormous population, (if the census were known, it would probably reach four hundred millions,) an occa-

sional destruction by famine, which has reached even to a hundred thousand victims.

The Chinese have long recognized the necessity of losing nothing; they have conquered natural repugnances, and introduced many natural products, which we reject, into their ordinary food. The lower classes, first, have employed substances despised by the rich; for with the former, children of necessity, all movements of progress take birth, which are afterwards adopted by every one. * * Dogs' flesh is considered, in Europe, as the worst kind of meat; it is called unmasticable. The Chinese have decided otherwise; they fatten dogs that are getting old and eat them; the butcher's stalls are garnished with dogs' meat as well as with that of other animals. The farmers breed a certain race of dogs suitable for fattening, which they call market-dogs, (*chiens de boucherie;*) among these may be mentioned a variety of wolf-dog, with upright ears, remarkable in that the tongue, palate, and the whole interior of the fauces are of a black color. * * In certain restaurants of *our* large cities, cats are sometimes served up for rabbits; the Chinese use no such deceptions, considering cat's meat excellent, and at provision stores may be seen enormous cats suspended with their heads and tails. On all the farms, these animals may be seen, attached to light chains, undergoing fattening with the refuse rice that would be thrown away, The cats are large, resembling those found in our counting-rooms and parlors; the rest imposed on them facilitates the fattening process.

The rat also occupies a large place in the nutrition of the Chinese; it is eaten like the meats just described, either fresh or salted; the salted are chiefly destined for the junks. The farmers, seeing that this article is profitable, have even devised a plan by which they can reap some advantage from the fecundity of this animal. They have *Ratteries;* to establish these rat-lodges, they place in the corners of walls, that rats frequent, bottles with necks large enough to admit the hand; the animal, mistaking these bottles, fastened in the walls, for crevices, makes its nest in them, raises its young, and the farmer goes from time to time to remove the young rats, just as pigeons are removed from nests in pigeon-houses.

From rodents, let us pass to batrachians. In some countries the hind legs of frogs are eaten; the Chinese eat them entire, looking upon them only as we do on little birds. Still further, what is to be eaten must be decided by taste and not by appearance—a very rational Chinese proverb. The Chinese having tasted the toad and having found it good, have made it one of their ordinary articles of food, despite its repulsive appearance. In China not a single toad is wantonly destroyed.

One word as to the mode of preparing these meats so as to remove all feeling of repugnance. The animals, or quarters of animals, generally pass through the hands of the roasters, and these are the most celebrated in the world. They have fire-places so constructed that the fire is somewhat elevated; below, there is a

support, to which are attached strings with hooks; these carry the article to be roasted, and the roaster from time to time twists the string above, so that by its untwisting and twisting the piece may be turned. The meats thus prepared are minced with a knife, and converted into hash, the form in which they are generally eaten. A national sauce, called *sania*, is usually added, and rice serves for bread. On the tables of the rich, not less than thirty or forty such hashes are found, differing only in taste. One does not know what he eats. Dinner begins with preserved fruits, and rice has the honor of being the last mouthful.

The French use nearly all the shell-fish of salt water; the Chinese also eat those that live in fresh water and on land, such as muscles, &c. They have a species of monstrous snail—*voluto melo*—which is a favorite dish. * * The Australians devour the glutinous zoophytes which the sea throws up on their coasts; the Chinese employ them also, and by aid of gastronomic proceedings, make good soups. In this class may be mentioned the *tre-pang*—Holothuria—which are dried and salted. They delight in everything that is gelatinous, mucilaginous and cartilaginous; sharks' fins, their swimming bladders, which they call *fish stomachs*, the tendons of all animals, &c. All these are dried for purposes of alimentation.

Among the fish that are dried are some small ones caught by cormorants, which are employed by the Chinese fishermen. They are brought up with a ring soldered on the neck, which, being retracted, so closes the œsophagus that they can only swallow gelatinous materials. The fisherman carries several of the birds in the stern of his boat—setting them free on the sea, they plunge on the fish, seize and try to swallow it; but the ring preventing the passage of the fish, the bird returns to the boat to be freed from a body which is snffocating it, and the fisherman removes the fish.

In China there are some districts where the *arachnidæ* are a choice dish, and consequently the larvæ of insects—caterpillars of all kinds—are a common article of food. *One* deserves to be noticed—the silk-worm; the Chinese hatch more than they have leaves of the mulberry, ailanthus, oak, &c., to feed until they arrive at maturity, and all that cannot be fed are cooked and eaten. And here is something still more strange. The chrysalis of the cocoons are not lost; they are cooked, and form one of the prized aliments of the Mongolic race. A naval officer who had eaten them, said lately that they were quite good, and compared a plate of chrysalis to a plate of *maroons*. They also eat earth-worms, but only in times of great distress, considering them poor food.

Hatched eggs must not be omitted, nor confounded with putrid eggs; the former are eaten fresh, or preserved, cooked and salted. They are preferred when they contain the young animal almost ready to break the shell. Their duck-boats are decorated with cages which serves as a home for the ducks during the night, and with furnaces for hatching their eggs. As many as five thousand eggs have been hatched on some of these boats. The ducks are

set free during the day, feeding on what is found in the rivers, returning to their floating home at night. A portion of the eggs thus hatched is destined for reproduction, and another portion is devoted to sale as public food.

A few words are required as to the birds' nests. These are nests of a swallow which frequents the sea shore. It is found somewhat abundantly in the islands of Oceanica, Java, the Celebes, and the Molaccas, and along the Chinese coasts. Birds' nest soup is a luxury, if we may judge by its cost. Throughout China aphrodisaic virtues are attributed to it; in rich society, they endeavor to resuscitate passion by this food, which of course fails. These birds' nests have no other merit than that of containing about nine per cent. of nitrogen, which makes them nutritious and strengthening.

Many errors have prevailed as to the nature of this strange alimentary product. Some have said that the sparrow made it of a mastic that it prepared from the semen of the whale, obtained in the foam of the sea; others that it was formed from fish-spawn malaxated with saliva in its beak; others that it extracts this gelatinous substance from a species of Algæ or Lichen which it obtained on the rocks at ebb-tide. The truth is, that the nest is an immediate animal product of a peculiar kind—a species of mucous that the bird has the property of secreting in its beak, at the period of reproduction, in such quantity that it is able to construct its nest entirely of it. Payen calls this substance *cubilose*, from *cubile*, because it is produced by the sparrow for the preparation of a bed for its young. In studying carefully the internal structure of this white hemisphere glued to the rock, it is found composed of small filaments adhering together, and one is brought to the conclusion that the sparrow draws these out with its beak, like the silk-worm spins its cocoon. On account of this peculiarity in construction, the nest, (which is very hard), when dissolved in water and converted into soup, still shows one portion in the form of a very fine vermicilli, while the remainder has dissolved as a jelly, and furnishes a soup of the clear brown color of strong beef soup.

The bird first constructs an external envelop out of small yellow roots, similar to those of the millet that are found in the sands of the sea shore; then it forms the nest proper with its mucous, and it seems as if it drew out some of its feathers to decorate the interior, so that its eggs and little ones could rest on a soft and warm bed. These, like our own swallows, are fond of building their nests together; hence agglomerations of six, eight or ten are often found so enlaced by their envelops as to prevent separation.

In the crevices of rocks and cliffs these nests are built; sometimes caverns are found which are filled with nests accumulated for ages. A discovery of this kind is the discovery of a treasury. It is related of a wealthy Chinaman, who, after having been ruined, repaired his fortune by means of the discovery of a bird's nest cave, the contents of which were worth a million of francs. Indeed, the

article is so prized that in the years when most abundant it is sold at 100 francs per kilogramme.

All the nests are not equally pure. Those that are perfectly white, after being cleansed, contain only the mucus of the bird. But when the bird has been disturbed in its first construction, either by enemies, such as birds of prey, serpents, or man, or by tempests, accidents, &c., it has no longer sufficient of its proper secretion to construct another nest, and its instinct teaches it to employ the mucus as a species of mortar to agglomerate other substances, such as algæ taken from rocky banks, and hence the cause of the belief that the nests were made from lichens. These impure nests are used also, but they are cheaper, and not in demand.

In making the soup, 120 grammes (corresponding in amount to one nest, or a nest and a half,) are put in a half litre of water, and boiled for two hours. It is very pleasant to the taste, although having a peculiar aroma. Soup for one man would cost in China 12 francs. In Paris they have been sold at one franc a gramme, 100 francs a kilogramme; and soup for one man would cost 120 francs.—*L'Union Medicale.* L. H. S.

Medicine and Surgery in China. By M. G. PAUTHIER.

The practice of medicine and surgery is, in China, a very honorable profession, at the head of which is an Academy of Medicine, (*Tai i youan,*) located at Pekin. The object of the latter is to maintain, in all its integrity, the science of medical practice, which dates from 3,000 years before our era, and to direct those entering upon such a career. The members composing this Academy are 115, 15 of whom are imperial physicians, (*Yu i,*) 30 practitioners, 40 doctors of medicine, and 30 aspirants. The imperial physicians are, in turn, on duty near the emperor and imperial family. They are often dispatched by the emperor to attend upon princes, princesses, ministers of State, and other great functionaries, when his majesty hears that they are sick.

Chinese medicine divides all diseases in *nine* great divisions, as follows: 1, Those affecting the pulse violently; 2, Those affecting it moderately; 3, Diseases produced by cold; 4, Diseases peculiar to women; 5, Cutaneous and painful diseases; 6, Diseases needing bleeding; 7, Diseases of the eye; 8, Diseases of the mouth and teeth; 9, Diseases of the bones. The physicians seem to have a tolerably good knowledge of anatomy, if we dare judge by the plates contained in their books. Their physiology rests on the system of two principles, *Yang* and *Ying*, or the *strong* and *weak* principle; the *male* and *female* principle, whose *equilibrium* and *harmony* constitute *the normal state*, and the predominance of either a *diseased* condition. Semeiology seems somewhat advanced with them; the practice of medicine having been, so to speak, hereditary in families, observation of diseases has produced

the art of recognizing them, which has been pushed very far. I learn from several French missionaries, who have been treated by Chinese physicians in China, that these exhibited an extraordinary aptness in recognizing the external signs of disease. Observation of the movements of the pulse, on which they place four fingers of the hand, is carried much further than in Europe.

The practice of medicine is called "the benevolent art," (*jen chou*,) and is placed second to the profession of literature, which is the first. The following are the conditions exacted from those wishing to practice medicine: a *celebrated practitioner* must be sought out as teacher, to learn the principles of the science and the properties of remedies; the best authors that can be secured must be studied. Such works are common and numerous in China. When the student has accomplished the study of the best medical treatises, and has followed for a sufficient time the practice of his patron, he can practice himself. There are no public schools in the empire where medical students take their degrees and are publicly received as doctors; the great college at Pekin, and the academy alone, require examinations and confer diplomas on those who, desiring them, are recognized as worthy. The Chinese penal code provides for cases where ignorant men practice medicine with the sole idea of gain, and without the necessary knowledge.

"As for those who shall exercise medicine or surgery, (literally *internal* medical practice and *external* medical practice,) without understanding them, who shall administer drugs or operate with a piercing or cutting instrument contrary to practice and established rules, and, by such a course, shall have caused the death of the patient, the magistrates shall summon others of the profession to examine into the nature of the remedy employed, or of the operation performed, which has been followed by the death of the patient. If it is manifest that they can be accused only of having acted through error, and without the intention of injuring, the physician or surgeon can be freed from the punishment inflicted on a homicide, in the way adopted in cases of accidental killing; but they will be obliged to give up the profession absolutely."

"If it shall appear that a physician or surgeon has intentionally not followed the established rules of practice, and while pretending to conquer the disease he really renders it more serious, so that the cure may bring him in more money, the sum which he shall have gained in this way will be regarded as stolen, and the punishment will be proportioned to the fees that he has received."

"When a patient has died, and the physician or surgeon who has attended him, during the course of the disease, shall be convicted of having designedly employed injurious drugs, or of having done other injuries to his health designedly, he shall undergo decapitation, after having been retained in prison until the proper season."

The ordinary practice of medicine is principally based on very delicate and minute observation of the patient's pulse, on which curious treatises have been written. The rules of practice, recom-

mended to Chinese physicians, are comprised in these four words: *wang, wen, wen, thsiei; examine, listen, question, feel.* These words are explained in this way: 1. *Examine* the countenance or physiognomy of the patient; 2. Notice the sound of his voice by *hearing* him speak; 3. Question him as to the origin or cause of the disease; 4. Feel his pulse.

The most common *surgical operations* among the Chinese are scarifications and acupuncture, which is done by needles figured in their surgical treatises. They treat fractures by means of bamboo splints, after having restored the fractured portions to their proper place. They also use internal medicines, which, they say, possess the property of uniting bones.

As for the resources of the general therapeutics of China, in cities where Europeans reside, as Macao, Canton, Shanghai, Ningpo, Amoy, Hong Kong, these are nearly the same as in Europe, with some Chinese medicine added. The Chinese *materia medica* embraces, in some way or other, all creation. We learn from a treatise on this subject by *Li-chi-tchan*, in 40 vols., "all things produced in the world, birds, quadrupeds, insects and fishes, have power over the breath and the circulating blood; the same is true of flowers and trees, which, although possessed of life, are not supplied with either breath or venous blood; inanimate objects also, such as stones and metals, may be employed as therapeutic agents." The objects examined, in the Chinese book in question, are comprised in 1,871 genera or classes.

All the medicines employed by the Chinese are not prepared by licensed pharmaceutists, but by those who have acquired knowledge in this kind of business—the herborists—who sometimes hawk their merchandise about.—*L' Union Medicale.* L. H. S.

Fœtus carried twenty-two months beyond Term.—Dr. Storer exhibited a fœtus, which he had received from Dr. James M. Buzzell, of Springfield, and read a letter from Dr. B., giving an account of the case.

The mother, aged 42 years, had had five children by her first husband. A year after his death, in 1850, she was married a second time. After her second marriage she had several miscarriages, and in the month of November, 1857, she became convinced that she was again pregnant, from the quickening, and other usual signs of pregnancy which she then experienced. By great care on her part she went the full period of pregnancy before any symptoms of labor appeared. At the time she expected to be confined, her breasts filled with milk, and her nurse was obliged to draw them for several days. In the month of April, 1858, she was supposed to be in labor, and sent for her family physician to attend her. He had been skeptical in regard to the fact of her pregnancy, but on his arrival, supposed he had formed an incorrect diagnosis. The pains, however, were not constant or of much force, and soon sub-

sided entirely, never to return as true labor-pains, although she had at intervals, for two months afterwards, occasional attacks of pain in the sides, which finally ceased. She had menstruated some two or three times during the nine months of gestation, as had been the case with her once or twice before, during preguancy, and afterwards the catmenia appeared at irregular intervals up to the time of her death, though the quantity was small. She enjoyed, to all appearance, good health up to October last, was fleshy, and capable of performing considerable labor. After the time of expected confinement, the size of the abdomen gradually lessened for about six months, when the *tumor*, as it was now supposed to be, was as large as a full-grown fœtus.

In October last, she fell down a flight of steps, by which she received a severe shock. She afterwards complained greatly of pain in the back and bowels. Dr. Buzzell first saw her at this time. She had much fever, and great pain and tenderness of the abdomen, which made it impossible to make a satisfactory examination for two or three weeks. There was a severe cough which aggravated her pain. Nausea and vomiting occurred every two or three weeks. As soon as a favorable opportunity occurred, Dr. B. made an examination per vaginam, and found the os uteri entirely closed, and the cervix obliterated; the uterus forming a solid tumor, fixed and immovable by any pressure of the hand or finger. Four weeks after the accident a diarrhœa occurred, of a large quantity of offensive matter, which was not seen by Dr. Buzzell. The paroxysms of nausea and vomiting increased in frequency and intensity until her death, which took place on the 14th of February.

At the *autopsy* a very extensive adhesion was found between the fundus of the uterus and the small intestines, and also between its side and the sigmoid flexure of the colon. The Fallopian tubes and ovaries were found in their natural relations to the uterus. The uterus contained a fœtus in the natural position for delivery, but no trace of a placenta could be found. There was about a pint of thick, yellow fluid in the uterine cavity. An opening in the left side of the uterus communicated with the interior of the colon, and the left hand and fore-arm of the fœtus were passed into the bowel, as far as the elbow. Feculent matter had passed into the cavity of the womb. The os uteri was entirely closed, and no trace could be found of it upon the inside.—[*Boston Med. Jour.*

Drops or Minims.—Notwithstanding all that has been said and written on the essential difference which exists between a "drop" and a "minim," and the danger which must often arise from the use of the former in prescribing the more powerful fluid medicines, there is still much room for improvement. The subject was brought forward in a trial which took place at Lewes, in the Crown Court of the Home Circuit, before the Lord Chief Justice, on Monday

last. The prisoner, a young man named George Bull, was charged with the manslaughter of his mother. The deceased lady was 66 years of age; she was subject to violent fits of sickness, and the prisoner, who had been brought up to the medical professiou, but was not in regular practice, was in the habit of prescribing to her small doses of prussic acid, of Scheele's strength. On Wednesday, the 11th of July, the prisoner procured a drachm of prussic acid from Mr. Roswell, a chemist in the town, and he administered to the deceased in the early part of the day a dose of four minims. In the evening the prisoner administered to her another dose of prussic acid; and the deceased had hardly time to go up to her bed-room when she became insensible and died almost immediately afterwards. Upon the bottle that had contained the prussic acid which the prisoner obtained from Mr. Roswell being examined, it was found to contain only twenty-five minims, thus leaving thirty-one minims altogether unaccounted for.

Mr. Scrase, of Lewes, the surgeon who had been called in to attend on the deceased, stated that the prisoner told him that he had given seven *drops* of prussic acid. In answer to questions from the Lord Chief Justice, Mr. Scrase observed that the size of the drop would be affected by the fact of the cork remaining partly in the bottle. It was his own practice to measure by minims; and, he observed, with such a deadly matter as prussic acid, it was not prudent for any medical man to rely upon drops; he ought to measure it. These, and some other observations on the relative strength of Scheele's and the *Pharmacopœia* acids, are what would be expected from a tolerably well informed and judiciously cautious medical man; but, in contrast, here is the examination of the druggist who sold the prussic acid:

"Mr. E. H. Roswell, a druggist at Lewes, deposed that on the 11th of July the prisoner came to his shop, and asked for some prussic acid, and he gave him a drachm. The drachm would contain sixty minims. He did not measure it, but gave what he considered to be one-fourth part of the bottle.

"Mr. Serjeant Ballantine: As you say you did not measure it, can you tell us how much prussic acid you really did give to this gentleman?

"Witness: I cannot say to a drop. I am sure he had fifty drops. I consider a 'drop' and a 'minim' synonymous terms. I gave the prisoner about the quantity, but when prussic acid is dispensed by a medical man, he is, of course, careful as to the quantity he uses.

"The Lord Chief Justice: We have been told that a 'drop' contains two minims, and this witness says he looks upon the two terms as synonymous.

"Mr. Serjeant Ballantine: If you were told to give a patient so many 'minims,' should you give him so many 'drops?'

"Witness: Certainly not.

"Mr. Serjeant Ballantine: Can you tell us the strength of the acid you sold?

"Witness: I don't know what strength it was. I should think about four per cent.

"Mr. Serjeant Ballantine: I am much obliged to you for your candid answers in reference to such an article as prussic acid."

Here is a man who looks on the terms "drop" and "minim" as synonymous, and, when asked for prussic acid, pours into the bottle what he considers to be "about the quantity!" We presume that Mr. Roswell is not a member of the Pharmaceutical Society, or in the habit of reading their publications. If he had seen the number of the *Pharmaceutical Journal* for the present month, he would have seen that a writer therein has elaborately demonstrated the fact—of which many members of the medical profession are probably already aware—of the utter want of definite proportion between the drop and the minim, and the consequent impossibility of using them with safety as convertible terms in prescribing.

The writer referred to, Mr. Barnard Proctor, states that he has ascertained the number of drops equal to a drachm of various essential oils, etc. The results are most strikingly various. To make a drachm, 100 drops of croton oil are required; of oil of caraway, 98 drops; of oil of peppermint, 110; of oil of cloves, 90; of chloroform, 250; of tincture of digitalis, 96; of tincture of opium, 108; of creasote, 110; of hydrochloric acid, 45; of *dilute* hydrochloric acid, 65: of nitric acid, 72; of hydrocyanic acid, 54. The size of the drop, Mr. Procter observes, is not affected by the comparative fluidity of the liquid, or by the thickness of the lip of the bottle; but by the manner in which the dropping is performed. Fifty-four drops of hydrocyanic acid equalled a drachm, when each drop fell clearly from the lip of the phial; but if the stopper were not entirely removed, and the drop fell conjointly from the stopper and the lip, thirty-two drops filled the same measure.

The drop or minim question is by no means a small one. A life may depend on it; and, short of this, how is it possible for any one dispensing medicine by drops to have an idea whether he is doing too much or too little? Suppose, for instance, that he is using a new fluid preparation, of which he is told the dose is so many *minims:* how can he, if he have proper regard either to the advantage or safety of his patient or to his own reputation, administer it in that most latitudenarian measure, the *drop!*

We would call the attention of our readers to the importance of the difference between the drop and the minim, as a matter of scientific as well as of practical interest in medicine.—*British Med. Journ.*, July 28, 1860.

Bibliographical Notices and Reviews.

Memoranda Medica; or, note-book of Medical Principles. Being a concise syllabus of Etiology, Semiology, General Pathology, Nosology, and general Therapeutics. With a Glossary. For the use of Students. By HENRY HARTSHORNE, A.M., M.D., Professor of the Theory and Practice of Medicine in the medical department of the Pennsylvania College. Philadelphia: J. B. Lippincott & Co., 1860.

In the preface the author says:

"The title of this volume is descriptive of its nature and purpose.

Its contents are, literally, *memoranda* of the most important points of the fundamental and introductory portion of the course of lectures delivered by the author in the department of the Theory and Practice of Medicine. It has been prepared under the conviction that, notwithstanding the excellence of the works upon the *different subjects* connected with Pathology and Practice, and the existence of several upon the principles of Medicine, yet no one text-book presents such a view of *all* the topics appropriate to this part of the course, as to form a brief, lucid, and *available* manual of *Medical Principles.*"

This is a neat duodecimo of near 200 pages. A cursory examination inclines us to believe that as a hand-book it is comprehensive in its scope, and well adapted to the intended purpose of the author. H.

On the Diseases, Injuries, and Malformations of the Rectum and Anus, with remarks on habitual Constipation. By J. T. ASHTON, Surgeon to the Bleinhim Dispensary, Fellow to the Royal Medico-Chirurgical Society, &c., &c. First American, from the third and enlarged English edition; with Illustrations. Blanchard & Lea: Philadelphia, 1860.

Diseases of the Rectum and Anus, are among the most common objects of attention in the practice of surgery. They are frequently, at the same time, the sources of very great annoyance and suffering

to their victim. The parts are, in some sense, peculiarly situated. The state of the rectum, its mechanical relation to its contents, is necessarily as variable as the state of these contents themselves. At times it is distended with hardened feces, and its venous circulation is thus interfered with. Then, in turn, it is thoroughly empty, and thus its veins deprived of a degree of support that is, perhaps, salutary, if not really necessary in sustaining that circulation.

A most obvious predisposing condition, it has often occurred to us, is to be found in the anatomy of the parts. The lower part of the rectum consists essentially of a hollow cylinder of muscular fibres, lined with mucus membrane, to which it is connected by the intervention of abundant cellular tissue, in which ramifies a delicate and complicate plexus of veins. These venous radicles especially are peculiarly situated. In one direction, they converge so as to constitute the superior hemorrhoidal vein, which, in its turn, empties into the inferior mesenteric, and thus into the great portal system. Furthermore, these venous radicles are essentially pendant. The whole portal system, the superior hemorrhoidal vein included, is destitute of valves. It is clearly perceived, accordingly, that we have the varying mechanical relations and conditions of the rectum, its dependent position, the length of the portal column, and the absence of valves in its veins, together with numerous and varying hepatic and intestinal obstructions, all tending to disturb, obstruct, and alter the structure of the venous hemorrhoidal radicles, and the other tissues of which the rectum and anus consist.

But this is not all. The act of defecation is effected at frequent intervals. In its very nature it is an expulsive effort, the tendency of which is to force whatever is situated at, or about the anus, into the external world. External to this plane of venous radicles is the muscular plane, of itself an efficient, if not even a powerful organ of expulsion. On the other side is only the delicate mucus membrane, which tends to extrusion rather than to give any adequate support. It is readily perceived that this combination of agencies is abundantly adequate to the frequent production of serious disorders. A careful consideration of these causes, too, in their constant and necessary operation will indicate the intractable character of many of these difficulties, and tend to explain why it is that mere medication is so frequently inefficient, and why radi-

cal surgical procedures are so frequently called for. Furthermore, in this view of the matter, it is not strange to us that many even of the later writers persist in describing hemorrhoidal tumors as mere varices, allied to varicocele as it affects the spermatic cord, or common varix as it affects an extremity. Whether they are, or are not, essentially varices, it is exceedingly difficult to contemplate them except as connected, more or less intimately, with this condition of the veins.

Diseases of the rectum and anus are essentially enhanced in importance from the sympathetic and contiguous relation of those parts to others. Thus, Hemorrhoids existing, the patient has dysuria or spasmodic stricture, as the result of it. Stricture of the rectum occurring to females, they have the indications of prolapsus uteri, and, perhaps, dysmenorrhea, or leucorrhea. On the other hand, a male patient having stricture, hemorrhoids occur as a sequel. Or a female has displacement, or morbid alterations of the shape or size of the uterus, and presents the indications of stricture of the rectum.

But the most singular and interesting, if not the most important of these sympathies, relate to distant parts.

We once had a female patient who was treated for years, by a surgeon of eminence, for supposed organic disease of the heart. Our first few examinations failed to satisfy us that very obvious and troublesome cardiac symptoms which were present, had an organic origin. Accordingly, we were lead to make diligent search for some sympathetic cause. After very persistent endeavors in this direction, we drew from our patient a very unwilling admission to the effect that she had piles, and that feelings of delicacy had deterred her from informing her former attendant in regard to them. An examination, very reluctantly submitted to, revealed the presence of a small, but exceedingly sensitive hemorrhoidal tumor, which, for years, had been a source of torture. As the neck was small, it was unceremoniously removed with scissors, and was followed by a subsidence of the cardiac symptoms.

Brodie says: "A lady consulted me concerning a pain to which she had been for some time subject, beginning at the left ankle, and extending along the instep towards the little toe, and also in the sole of the foot. The pain was described as being very severe. It was unattended by swelling or redness of the skin, but the foot was tender. She labored also under internal piles, which protru-

ded at the water closet, at the same time that she lost from them sometimes a larger and sometimes a smaller quantity of blood. On a more particular inquiry, I learned she was free from pain in the foot in the morning; that the pain attacked her as soon as the first evacuation of the bowels had occasioned a protrusion of the piles; that it was especially induced by an evacuation of hard feces; and that if she passed a day without an evacuation, the pain in the foot never troubled her. Having taken all these facts into consideration, I prescribed for her the daily use of a lavement of cold water; also the use of Ward's paste (confectio piperis composita) three times daily, and some laxative electuary at bed time. After having persevered in this plan for six weeks, she called on me again. The piles had now ceased to bleed, and in other respects gave her scarcely any inconvenience. The pain in the foot had entirely left her. She observed that in proportion as the symptoms produced by the piles had abated, the pain in the foot had abated also."

But this is a long introduction to the brief notice, to give which was the object with which we started.

The arrangement of the author's work is sufficiently systematic. The book is divided into 20 chapters, the subjects of which are as follows:

Irritation and Itching of the Anus; Inflammation and Excoriation of the Anus; Excrescences of the Anal Region; Contraction of the Anus; Fissure of the Anus and lower part of the Rectum; Neuralgia of the Anus and extremity of the Rectum; Inflammation of the Rectum; Ulceration of the Rectum; Hemorrhoidal Affections; Enlargement of Hemorrhoidal Veins; Prolapsus of the Rectum; Abscess near the Rectum; Fistula in Ano; Polypi of the Rectum; Stricture of the Rectum; Malignant Disease of the Rectum; Injuries of the Rectum; Foreign Bodies in the Rectum; Malformations of the Rectum; Habitual Constipation.

Passing over the first four chapters, as not containing anything new in pathology, or peculiarly important in practice, we wish to note some practical features of the chapter on fissures of the anus. Eminent authorities in the profession allege that incision is the only effective remedy. This, indeed, has hitherto been the doctrine of the profession. Hence we are gratified to learn that the author's experience justifies him "in stating that in the majority of recent cases it is not necessary to have recourse to an operation."

XUM

As to his practice, he directs as follows: "If the fissure exists at the verge of the anus, and is of recent origin, the patient must be directed to have recourse to ablution with soap and water night and morning; after evacuating the contents of the bowels, half a pint of cold or tepid water should be thrown up; and when this has been ejected, a small piece of lint, saturated with the following lotion, or one of similar properties, must be kept applied to the part:

℞ Plumbi Acetatis, gr. x; Liquoris Opii Sedativi, m-xx; Aquæ Sambuci, ʒ iv. Misce.

When there is much spasm of the sphincter, the extract of belladonna, in the proportion of a drachm of the extract to an ounce of spermaceti ointment, or ointment of acetate of lead, is commonly successful in relieving the distressing symptom.

"At the same time that local treatment is being practiced, it will be necessary to attend to the state of the secretions and excretions, and to correct any error in the patient's habits and manner of living."

This failing, the repeated application of nitrate of silver is recommended, which, in its turn, failing, recourse must be had to a modification of the operation of Boyer, which consists in an incision through the ulcer. This incision need not be carried through the sphincter, as was practiced by Boyer, and as is still recommended by most of our standard authorities; but should only be carried to a limited depth, as recommended by Brodie and Syme, as this is all that is requisite to the most complete success.

The chapter on hemorrhoidal affections embraces 76 pages, and is quite full. It is an appropriate and rather full discussion of an interesting subject. The practice recommended is such as is ordinarily recognized by the profession.

The chapter on fistula in ano, although neither lengthy nor elaborate, is perhaps the most complete one in the book. It contains no novelties, but is up to the times. The author appropriately calls attention to the important fact originally pointed out by Sabatier, abundantly proved by M. Ribes, and confirmed by more recent observations and almost universal experience, that there is almost always an internal opening to these fistula, and that it is situated within five or six lines of the integumental margin.

This observation, almost universally assented to, has seemed to us to be wholly inconsistent with the theory of Brodie as to the

origin of anal fistula. This able observer supposes that fistula in ano commences as an ulcer of the mucus membrane of the bowel, extending through the muscular tissue into the surrounding cellular tissue. Irritation of this, by the presence of feces, &c., may either cause the ulceration gradually to proceed, or abscess to form; in either case fistula following, sooner or later, as the result. All this, however, is predicated upon the supposition that the inner orifice is situated at a considerable depth, at least above the sphincter muscle, where the feces are liable to be stopped, and where ulcers are usually situated. This assumption, however, is at variance with the facts in the case, as will be inferred from what has been said above.

As to the practice recommended for this disease, we have simply a judicious exhibit of that which is generally known and adopted. It is appropriately insisted that there is no necessity for incisions in the ordinary operation, beyond laying open the track of the fistula, from the point at which the internal orifice is situated.

But it is inconsistent with our limits, and certainly so with the intention with which we set out, to follow our author at any very great length. Cases, illustrative of the various diseases described, are abundant and apposite. The author's style is sufficiently clear, without being especially characterized by perspicuity. His sentences are occasionally lengthy to a fault, and consequently more or less involved. The book would have been saved this fault, in a great degree, by a more careful observance of the ordinary rules of punctuation. For the limited scope of the work, it is sufficiently full, without being elaborate. It is eminently conservative and safe in the practice which it inculcates. The publishers present it to the profession of the United States in a volume of 292 pages, in good clear type, on a fair article of paper. Indeed, the mechanical execution is in every way creditable. H.

On Obscure Diseases of the Brain and Disorders of the Mind: their Incipient Symptoms, Pathology, Diagnosis, Treatment and Prophylaxis. By FORBES WINSLOW, M.D., D. C. L. Oxon, etc., etc. Philadelphia: Blanchard & Lee, 1860; pp. 576.

This work, we are told by the Author, was originally intended as an Introductory Chapter to a treatise on softening of the Brain. The subject, however, so expanded itself before the mind of the Author that he concluded it would be more consistent with scientific analysis to publish his thoughts and researches in a separate volume.

The work is confined to a *resumé* of the incipient symptoms of the various forms of cerebral and mental disorder. There is but little said on the subject of therapeutics.

As is the fashion at the present day, the work is commenced with the aphorisms of the *Father of Medicine:*

"Life is short;" "Art long;" "The Occasion fleeting;" "Experience fallacious;" "Judgment difficult."

These aphorisms apply with much force to the incipient stages of mental disorder. How often is it that the Time for recognizing and remedying premonitory symptoms is short? where in the whole domain of pathology is Experience more fallacious? where Judgment more difficult? What more common than to see friends neglect to call the attention of the physician to the early manifestations of cerebral trouble? For months often, phenomena, that, to one having ordinary skill in diagnosis, would be regarded as foreshadowing serious results, are totally neglected, or attributed to slight temporary causes. Dr. Marshall Hall, speaking on this subject, remarks:

"A useful work might be written on the subject of insidious and impending diseases with the view of making their first or antecedent symptoms known to the public, and of thus suggesting the care and means necessary to their removal."

As an example of the aphorism, "occasion fleeting," we extract from the work the following, not because it presents to the observing part of the profession anything novel, but because it should be kept before the mind whenever mental aberrations are present:

"A lady, apparently in excellent health, is riding with her brother in Rotten Row. While engaged in active and cheerful conversation, she suddenly complains of giddiness and sickness, and becomes deadly pale. A few minutes afterwards it is found that she could not articulate. She is carried home and soon becomes unconscious and dies on the following day."

Again:

"A literary man, while speaking at a public meeting, is suddenly seized with an uneasy sensation in his head. He says it feels 'as though it would burst,' "as if the brain was too big for the skull." He returns home, becomes apoplectic and dies on the evening of the day."

Sir Wm. Ellis, Superintending Physician to the Hannell Co. Lunatic Asylum in 1833, thus speaks of the sad consequences that result from the neglect of recognizing and treating insanity in its early stages:

"It is a melancholy fact that on a most careful personal examination of each of the 558 cases now in the house, there do not appear more than 50, who under the most favorable point of view can be considered curable. This is to be attributed almost entirely to the neglect of proper remedies in the early stages of the disease. * * Diseased action is allowed in the great majority of cases to proceed unchecked until diseased *organization* has taken place, and the patient has become incurable."

The importance of the above suggestions is so manifest, that it is unnecessary to multiply them. All who have any experience in the treatment of the insane, agree that 80 per cent. of recent cases are curable, while old cases, are, as a rule, beyond the reach of remedies. This difference in favor of recent cases is attributable mostly to two things: easier diagnosis, and absence of structural lesions.

The author analyses his subject in the following order:

"1. *Morbid Phenomena of Intelligence.*

"2. *Morbid States of Motion.*

"3. *Morbid Conditions of Sensation.*

"4. *Morbid phenomena of the special senses, viz: Sight, Hearing, Taste, Touch, Smell.*

"5. *Morbid Phenomena of Sleep and Dreaming.*

"6. *Morbid Phenomena of Organic Life, viz: Digestion, Circulation, Respiration, Generation.*

"7. *General Principles of Pathology; Treatment and Prophylaxis.*"

The brain being the organ of thought, the material instrument of Intelligence, it would seem to be a very philosophical mode of reasoning to refer mental aberrations of all kinds to faults of structure. Still, in the present state of knowledge, we are without the authority to do this. On the other hand, cases repeatedly occur in which serious diseases of the brain during life, such as softening, abscesses of its structure, induration, have been attended by no unusual symptoms, no alterations, no impairment of function whatever. Such cases are pathological curiosities, in the estimation of our author, and are the exceptions, not the rule.

The author affirms:

"That in every case of disease of the encephalon, particularly if the organic change or pressure be established in the vesicular matter, or in the membranes immediately investing the brain, a disordered or abnormal state of cerebro-psychical phenomena may be, in the incipient stage, detected."

The author, in considering the *psychical* section of his subject, commences with: "1. *Exaltation;* 2. *Depression;* 3. *Aberration;* 4. *Impairment;*" "conditions of unhealthy Intelligence which exhibit in their origin, progress and termination, a variety of shades and degrees of disturbance and disease commensurate with the nature, extent and position of the cerebral lesion."

The premonitory symptoms of insanity, although of prime and incalculable importance to the therapeutist, are by no means free from complexity. Exaltation and depression, for example, are normal within certain limits; beyond these either one of them may indicate the incipient stages of insanity. Also, aberrations or impairment of the faculties arise so frequently, and from such a variety of causes, and subside so constantly without remedies, that they do not receive the attention to which they are entitled.

The state of the mind called *ennui* has generally been supposed to be one of *brain rest.* Those, however, who have paid attention to the exact character of the sensations connected with it, will discover that a very striking fallacy is involved in such a conclusion.

"It is, in many cases, an active condition of the mind unaccompanied by the pleasurable, and consequently healthy gratification usually associated with ordinary emotional excitement. * * * A mind *ennuied* may unconsciously be occupied in the contemplation of mentally distressing, and physically laborious and depressing thoughts. Let us, therefore, not flatter ourselves with the illusion that a life of idleness and inactivity is one of repose, rest and freedom from painfully perturbed thoughts. How true it is:

'A want of occupation gives no rest;
A mind quite vacant, is a mind distressed.'"

In chapter III., under the head of Premonitory Symptoms of Insanity, the author asks the questions: "*What is Insanity?* What is the constitution of the *materies morbi*; the exact condition of the moral and intellectual faculties, emotions, instincts, or passions, during, to use the significant suggestive language of Coleridge, '*the mind's own revolt upon itself?*' Is insanity an affection of the mind *per se?* Has the disease a psychical or a somatic origin? Is it possible for thought, in the abstract, to be diseased, independently of images occupying the consciousness? Does alienation of mind depend not exclusively upon a psychical or somatic cause, but

upon a disturbance in the normal relations existing (in states of cerebral and mental health) between the mental and physical functions of the brain?"

Before endeavoring to answer any of the above questions, the author proposes another batch:

"What is mind? Have we any knowledge of its *nature*, *seat*, mode of *action*? How does the mental principle, believed to be eliminated in the gray matter of the brain, become so mysteriously and marvelously changed from *nerve* to *mental* force, and *vice versa* in the hemispherical ganglia? What is the nature of the *vis nervosa* of Haller? * * * Is the mysterious and undefinable '*fluid*' or '*force*' circulating in the nerve tubes, a voltaic current?"

We confess our inability to see the propriety of most of the above questions. It is scarcely necessary to say to the tyro, even, that all such questions are avoided by many who understand themselves. What mind is, or what its relations are to the body, are questions that human beings, until differently capacitated, have no business with. In physical and psychical science we know nothing of essences or intimate nature; all that we can know relates to sensible qualities, to phenomena. In commencing the discussion of "the premonitory symptoms of insanity," we regard the author, therefore, as having obtruded unnecessarily such thread-bare subjects. The question, "What is Insanity?" of course is very properly introduced, and the same may be remarked of the inquiries relating to the faculties, emotions, etc., impaired; and such would have been sufficient.

In the chapter relating to the "*confessions of patients after recovering from insanity*," the author presents very much that will interest those engaged in the study of psychical and somatic phenomena. What, indeed, more instructive than accounts embodying a faithful record of the sensations of a lunatic, given by himself after having recovered from his disease! And although a portion of what is related has necessarily to be taken at a discount, yet a new field is thus opened by which the departments of pathology and diagnosis will be enriched.

"The mind is 'one and indivisible.' A part of the intellect cannot be affected without to a certain extent influencing and modifying the whole of the operations of thought, nevertheless there are in derangements of the mind occasional lucid moments, when the patient is conscious of his state of disorder, and is able to describe his sensations clearly to those about him"

We have no space for the autobiographies with which the chapter before us abounds. They are numerous, and most of them from the pens of patients in the upper orders of society, and on this account are reliable.

The chapter "*On the State of the Mind*" when recovering from an attack of insanity is deeply interesting. The period during which the mind is passing from the *insane* to the *sane* condition varies in length very much. In some cases reason is restored very suddenly to its sovereignty; in others the mind gradually and imperceptibly awakens into the state of healthy consciousness. A patient states: "I felt as I was recovering, the delusions gradually losing their hold on my fancy. I then began to entertain doubts as to their reality. I felt disposed to listen to the judicious advice of my physician. I was no longer irritated in being told that my perceptions were false." Another patient describes his state when recovering as follows: "During the whole of my illness, which lasted for eighteen months, I always fancied myself surrounded by a dark cloud. * * Knew no difference between day and night. * * I date the commencement of my recovery from the time when this mysterious darkness began gradually to fade away. * * When I saw things through a clear and sunny atmosphere, my happiness and peace of mind were restored; in other words, I was well."

Perhaps the most knotty of all the subjects brought to the attention of the reader is the boundary line between sanity and insanity. "How imperceptible and shadowy are the gradual transitions from a state of health to one of disease?" When do the mental states called singularity, oddity, eccentricity, cease to be normal? When is it that anger, depression of spirits, melancholy, ungovernable and untrainable habits become evidence of incipient insanity? Or in other words, where the limits of healthy thought, emotion, passion?

"In its incipient stage, mental disorder is characterized generally by acute morbid sensibility, physical and mental, accompanied by a difficulty in fixing the attention. * * * At an early period, the patient complains of being very ill, and exclaims that he is losing his senses, often pertinaceously asserting that his mind is not his own. * * * The man remarkable for his caution and circumspection, becomes reckless, extravagant and imprudent. If orderly and economical, he is confused and prodigal. If noted for his preciseness, he exhibits great carelessness and negligence. If gay and communicative, he is sullen and morose."

This work, we may say in conclusion, will prove to be a very valuable accession to our literature on the subject of Insanity. It discusses subjects but little dwelt on in the ordinary treatises, and they happen to be the very ones of most importance. A work, indeed, which facilitates our acquaintances with the early symp-

toms of insanity and throws additional light on diagnosis, is just what in this age, when the subject is receiving so much attention, is needed. Physicians are, from the nature of their calling, generally called upon as "*experts*" in cases of supposed insanity. And in this position it is very commonly the case, that almost every thing turns upon their evidence. They will therefore find this volume very rich in material that will assist them in almost every emergency.

The Principles and Practice of Modern Surgery. By ROBERT DRUITT, Lieutenant of the Royal College of Physicians London; Fellow of the Royal Medical and Chirurgical Society, of the Medical Society of London, etc., etc., A new and Revised American, from the eighth enlarged and improved London Edition. With four hundred and thirty-two Illustrations. Philadelphia: Blanchard & Lea, 1860. pp. 695.

This has always been a favorite work. As a hand-book, for students it has taken a high rank; while from its lucid style and the vast amount of matter compressed within a small compass, it becomes also a very acceptable *vade mecum* to the practitioner.

In the present edition the author has endeavored to replace old and doubtful matter by new; aud this he has done without scarcely any increase in the bulk of the work.

The additions of new matter relate to Inflammation, Cancer, Gunshot Wounds, Diseases of the Eyes, Syphilis, Anchylosis, Ovariotomy, and the Ophthalmoscope.

The Obstetric Catechism, containing two thousand and three hundred and forty-seven Questions and Answers on Obstetrics proper. By JOSEPH WARRINGTON, M.D. One hundred and fifty illustrations. Philadelphia: J. B. Lippencott & Co., 1860. pp. 445.

This volume is designed for students, and we should think, from an examination of its contents, that it is a meritorious production. The student, indeed, will find it *multum in parvo*. There is scarcely a subject that concerns either the *Art* or *Science* of midwifery but what is explained so as to be easily comprehended.

XUM

Theory and Practice of Midwifery. By FLEETWOOD CHURCHILL, M.D., M.R.I.A., Fellow of, and Professor of Midwifery and Diseases of Women and Children in the King and Queen's College of Physicians in Ireland, etc., etc. With Additions by FRANCIS CONDIE, M.D., Fellow of the College of Physicians of Philadelphia, etc. With one hundred and ninety-four Illustrations. A new American, from the Fourth Corrected and Enlarged English Edition. Philadelphia. Blanchard & Lea, 1860. pp. 655.

The scope and general character of this Treatise is such as to adapt it to the use of the student and practitioner of midwifery. The edition before us has been carefully revised by the author, and made to embrace every improvement that has been developed in modern times.

This edition contains one half more matter than previous ones, and notwithstanding the use of smaller type, the number of pages has been increased nearly two hundred.

Editorial and Miscellaneous.

BRIGHAM HALL, CANANDAIGUA, N. Y.—A report from this Hospital for the Insane has been placed on our table, and appears to merit a passing notice. In the spring of 1855 three individuals united in an association for the purpose of establishing a hospital for the treatment of the insane, and the enterprise has proved quite successful. From the opening of the institution to the first of September, 1860, there have been 166 patients admitted, of whom 40 have recovered. Forty were discharged improved, 19 unimproved, and 10 have died; 48 remain under treatment. The deficiency of accommodations in the State institutions have been frequently presented. Those unable to find places for afflicted friends may turn their attention to this place. The hospital is under the care of GEORGE COOK, M.D., and JNO. B. CHAPIN, M.D., son of Mr. WILLIAM CHAPIN, formerly Superintendent of the Ohio Institution for the Blind. Patients are received on a medical certificate of insanity and the execution of a bond for support.

NEW YORK GAZETTE.—The editor of this print, we see by the October No., dies hard. He confirms, however, the old adage: "The ruling passion strong in death." *Peace to his manes!*

Time and mode of occurrence of the greater part of the shortening which follows oblique and over-lapping fractures.

For a number of years past, our observations have strongly impressed us with a belief that our surgical text books and surgical teachers, would do well to observe a distinction, as to the length of time treatment should be continued in the larger oblique, and those transverse fractures in which there is reason to suspect the existence of over-lapping, as compared with transverse fractures where there is something near a perfect adjustment, and where, consequently, there is no over-lapping.

A little reflection will render the propriety of this suggestion obvious.

It is believed that all our works concur in representing that the new bond of union is such that pressure is capable of materially modifying deformities, of correcting angles, &c., at the end of the ordinary period of treatment, and for a time after it. In other words, it seems to be generally conceded that pressure is capable, to a greater or less extent, of producing the absorption of the plastic material, and consequently, of altering the relation of the newly united bones to each other.

Now, apply what is thus admitted to the circumstances attending a well reduced and well retained transverse, as compared with an over-lapping or very oblique fracture.

In transverse fractures, if reduction and retention have been quite successful, at the end of about 40 days, more or less, we drop our means of extension and counter-extension, and very soon, if a lower limb is involved, more or less weight is borne by it.

Reduction and retention, in the case supposed, having been quite perfect, the fractured surfaces are maintained, more or less perfectly, in contact with each other. In these circumstances, according to the current professional opinion, there is poured out a minimum quantity of plastic material. It is deposited in the medullary canal, between the ends of the bones, and upon any offsets there may be. When our mechanical appliances are thrown off, we give up the parts to a constantly exerted and unrestrained muscular action, which now tends to approximate the articular

extremities of the bone, with a great degree of constancy and efficiency. The use of the part does the same thing, partly by the pressure incidental to such use, but mainly by the increased muscular action which it brings into requisition.

In these circumstances, however, no shortening results. Pressure on the articular extremities of the broken bones, such as both muscular contraction and the use of the limb produce, being exerted in, or nearly in the axis of the bone, tends only to force its fractured surfaces together; and though this may have the effect to diminish the amount of the intermediate callus, it can have no tendency to force the bones asunder, but tends rather to bring them into more intimate contact, and thus, perhaps, to increase the strength of the recent union.

But suppose there is over-lapping, and the patient is subjected to treatment for the same length of time: admit, too, which is very doubtful, that an equal strength is attained in 40 days. The bond of union in this case is effused in maximum quantity; lies between the bones, around them more or less, and on their ends, so as to occlude the medullary canal. What, in these circumstances, and from these considerations, will be the effect of pressure from the use of the limb, or of the much more constant and efficient pressure consequent upon unrestrained muscular contraction?

It strikes us that the answer is obvious. Pressure upon the articular extremities, such as use and muscular contraction effect, is indirect pressure upon the still frail plastic material, and can not fail, if it produce the ordinary effects of pressure, to change the relation of the bones, making them gradually to glide upon each other, thus increasing the over-lapping and shortening. Hence, the necessity of resisting muscular action, and suspending the use of the limb—of continuing treatment, in other words, for a greater length of time, than in the first class of cases. Hence, too, the necessity of guarded prognoses in this class of cases.

A little reflection is sufficient to show that these facts and arguments apply with scarcely less force to very oblique fractures, with the best possible adjustment, and perhaps, with cumulative force to those cases in which, though the fracture may not have been oblique, nor the bones allowed to overlap, but in which the fragments are bent out of axis, forming an angle at the seat of fracture.

That this is not a mere matter of theory we have proved, in a limited number of cases, by carefully instituted measurements,

made at various periods. In an over-lapping, or very oblique fracture, the amount of shortening at the end of fifty days may be a half an inch. *At the end of twelve months, without accident or violence to account for it, the shortening, in the same case, may reach from one to two inches.*

As a practical matter, accordingly, if, when swelling has subsided, the surgeon has the mortification of finding a fractured femur over-lapping, or united at an angle; or, if from the first, there are the indications of great obliquity, the surgeon should be exceedingly careful not to discontinue the use of splints, or allow his patient to use his limb, till there are the most unequivocal indications of firm and reliable union; and not even then till he has carefully informed his patient in regard to ultimate results.

The point we wish distinctly to present is, in a single sentence, that *the shortening which is usually present after fracture, is, in many cases, largely secondary; occurring after the ordinary period of suspending treatment, in a gradually diminishing rate of progression, which may occupy many months, or even a year or two.*

We invite the attention of surgeons to this matter, as being both surgico-legally, and practically important in its bearings.

H.

Dr. O. C. GIBBS, of Frewsburg, Chautauque co., N. York, a most exemplary worker in his profession, proposes to issue a *Year Book of American Contributions to Medical Science and Literature.* It is designed to present summaries of all original articles found in American journals, or the published proceedings of societies, &c.

The work will contain from 500 to 1,000 pages, and will be furnished at $3.00. He solicits the early forwarding of the names of subscribers—payment to be made only on the publication of the work.

All books, journals, published transactions, and names of subscribers, should be directed to him, at his place of residence, as above indicated.

We are gratified with the opportunity of commending his undertaking to the profession. H.

THE proprietors of the Journal usually send out bills to their subscribers with the first number of each volume. On account of general complaints of hard times, and the prospect of improvement, we did not send out our usual missives with the September issue. As the good time, long hoped for, has arrived, we send bills with the present No., and hope for "material" responses without delay. The Journal has a small indebtedness. One thirtieth of what is due would wipe it out. Shall we have it?

The bills are not for delinquencies merely, but for the current volume also.

If any mistakes occur in these bills, we will, of course, make proper corrections, on being informed of them.

H.

DIPHTHERIA.—In our private correspondence, and our personal intercourse with physicians, from almost every quarter we hear of Diphtheria. We are accordingly much gratified with being able to present our readers several valuable contributions on the subject. It is prevailing in a mild form, but quite extensively, in this city. We saw a case in the town of Dublin, a few days since, in consultation with Dr. Marshall, where the Diphtheritic deposit was confined to the vagina and labia, with inflammation of the integument, lymphatic ganglia, &c., of the groin. We are informed of another case of the same kind in Delaware county, and of another in the same neighborhood, in which it appeared on a blistered surface. Dr. Beach, whose communication we publish elsewhere, informs us that in one case his patient took diarrhœa, and died within a few hours with symptoms closely resembling cholera. We had another just such, the patient dying two or three hours after the diarrhœa commenced.

Dr. Beach brought a case for our advice about six weeks since, in which there seemed to be more or less paralysis about the pharynx, with imperfect control of all the muscles about the throat, so that speech and deglutition were very imperfectly performed. There were also some tingling, impairment of sensation, &c., about the hands and feet. The sequel may be learned from the following extracts of a letter received from the Doctor on the 22d ult.:

"The young man you saw a month since does not improve at all. Both he and his sister (aged 16) are nearly helpless, so far as

the lower extremities are concerned. They can both walk, but it is difficult for them to get into a carriage, or get up steps. The girl seems to have lost the use of the muscles that pull the thigh forward, as her walk is more a dragging of the feet than anything else. She complains of no pain, but extreme weakness about the hips. The numbness has diminished in both cases. Both have excellent appetites, have gained flesh, and have recovered their natural tone of voice. They seem *well*, excepting the want of power about the legs, and a slight œdema of the feet and legs, and possibly the face. The girl has not menstruated since the first illness, three months ago. The boy has a feeling of aching along the spine, but no tenderness on pressure. Treatment has been: iron and strychnine, shower bath, friction along the spine, exercise," &c.

We are aware that the facts which we mention above are not particularly novel. They are mentioned for the purpose of fixing attention upon the varying aspects of the disease, and of interesting physicians in the subject. We will be under special obligations to our friends if they will continue to forward us the results of their observations. H.

PRESENT SESSION OF STARLING MEDICAL COLLEGE.—The numerous friends of this Institution will be gratified to learn that the present session is commencing under unusually pleasant auspices. The number of students already in attendance, although the preliminaries are hardly through with, is several more than the average of the full attendance for several years past. Last year the class was an advance of 20 per cent. on previous years. The present class is an advance of full 30 per cent. on the class of last year, and includes a very large proportion of it.

We take the liberty, in behalf of our colleagues, to express the hope that no physician will visit our city without calling at our lecture rooms.

As to the character of the class, we have only to say, that it is the most intelligent, decorous and promising one we have ever seen. H.

THE MAN THROUGH WHOSE HEAD AN IRON ROD PASSED STILL LIVING.—All who are old enough to have been readers of medical journals in 1848, will recollect the case of the man Gage, through whose head passed a tamping rod, three feet seven inches in length, an inch and a quarter in diameter, and weighing 13¼ pounds.

A few months ago we had occasion, in some clinical remarks, to make mention of this remarkable case, in which we stated that, though the man survived, we were not informed as to the mental and general condition in which the injury left him.

Dr. Henry Trevitt, of Valparaiso, South America, who was present, at once replied to our remark that he knew Gage well; that he lived in Chili, where he was engaged in stage driving; and that he was in the enjoyment of good health, with no impairment whatever of his mental faculties.

Dr. Harlow, of Cavendish, Vermont, in whose practice the case occurred, described the wound as commencing just anterior to the ramus of the inferior maxillary bone of the left side, taking a direction upward and backward toward the median line, passing through the left anterior lobe of the cerebrum, and making its exit at the junction of the coronal and sagital sutures; lacerating the longitudinal sinus; extensively fracturing the frontal and parietal bones; breaking up a large portion of the brain, and protruding the globe of the left eye from its socket by nearly one-half its diameter. A full account of the case was published in this Journal for January, 1848. H.

BEQUESTS.—The late Hon. Jonathan Phillips, of Boston, has bequeathed to the Massachusetts General Hospital and to the Massachusetts Medical Society each ten thousand dollars, and to the Charitable Eye and Ear Infirmary and to the Boston Dispensary each five thousand dollars, and twenty thousand dollars to the city of Boston, to be expended in adorning the streets and public squares—*Med. News.*

MEDICAL DEPARTMENT OF THE UNIVERSITY OF LOUISIANA.—Prof. Lawson, of Cincinnati, has been appointed Professor of Clinical Medicine in the Medical Department of the University of Louisiana.

MEDICAL PATENTS AND OUR NATIONAL CODE OF ETHICS.—On the cover of the *Boston Medical and Surgical Journal*, we notice the advertisement of "*The Uterine Elevator—Patented January* 23, 1860," and invented by John A. Wadsworth, M.D., of Providence, R. I. This advertisement contains the joint certificate of twenty-six individuals with M.D. attached to their names, thirteen of whom have their names also recorded on the list of Permanent Members of the American Medical Association.

Turning to the Code of Medical Ethics of the Association, we find under the general head—"*Of the duties of Physicians to each other, and to the Profession at large*," and under the special head—"*Duties for the support of professional character*," the following important clause:

"4. Equally derogatory to professional character is it, for a physician to hold a patent for any surgical instrument or medicine, etc." Also: "It is also reprehensible for physicians to give certificates attesting the efficacy of patent or secret medicines, or in any way to promote the use of them."

Can the inventor of this wonderful instrument, (which requires only to be *looked at*, to be pronounced the best), the gentlemen signing the certificates, or the editors of the journal advertising, put their hands on their hearts and say, we do no wrong? For shame on the whole transaction! Will the American Medical Association permit her *members* thus to violate their first great duty to her?—*N. O. Med. News.*

PROTRUSION OF BONE BY GROWTH FROM THE END OF A STUMP.—When limbs have been submitted to amputation in childhood, it not unfrequently happens that, as the individual grows, so does the bone elongate itself in a proportionate manner, and then protrudes through the soft parts, after a time forming a conical stump. Instances of this kind we have already brought under the notice of our readers; and that the bone does grow is believed by many surgeons of high authority, amongst whom are Mr. Stanley, Mr. Curling, and others. An undoubted example of it was recently admitted into Guy's Hospital, under Mr. Hilton's care. The patient was a healthy-looking girl, of about the age of eighteen years, whose right arm had been amputated in childhood. The stump healed kindly, and remained healthy for some years, when it gradually

became conical, and from the point protruded the end of the humerus. Its appearance was like an exaggerated nipple somewhat drawn out. There was no retraction of muscular substance here, but clearly an outgrowth of bone. The soft parts were tender in spots, as if from the pressure on or stretching of some of the nerves; in fact, they could be marked by pins. The rest of the stump was healthy. Chloroform was given on the 24th of July, an incision was made on either side, freely laying open the stump, and three inches of the bone sawn off; the parts were brought together, and the girl is now doing very well.—*Lancet*, Aug. 11, 1860.

The Metallic Seton in Hydrocele.—Several cases have lately been treated at the London Hospital by the introduction of the silver wire seton, and with very satisfactory results. The following case, however, in which severe suppurative inflammation of the cavity was caused, is one which it is only right should be placed on record: The patient, Wm. C., a healthy man, aged 32, was admitted in May, under the care of Mr. Gowlland, with hydrocele on the right side. Mr. Gowlland had tapped him three months previously, while attending as an out-patient. It had now filled again, and was about the size of a small fist. The man stated that he thought that side of his scrotum had been larger than the other since boyhood, but that there had been no remarkable enlargement until January last. Mr. Gowlland admitted him, and on May 3d tapped the tumour, and injected with iodine in the usual manner. The sac refilled, and as the man was impatient for a cure, on May 28th—that is, nearly a month after the injection—Mr. Gowlland introduced a silver wire seton consisting of two threads. On the next day the inflammation of the part was very acute, and the pain severe. The man had also a good deal of abdominal tenderness. On the third day the inflammatory symptoms ran so high that it was necessary to withdraw the wires. On May 31st, the swelling being very great, and suppuration having evidently taken place, Mr. Gowlland laid the sac freely open by a vertical incision, three or four inches long. This measure gave great relief; but for a time it appeared doubtful whether the testis itself would not become involved, as the tunica albuginea presented in the wound. Ultimately the man made a good recovery, but he had undergone a very serious illness. He was discharged from the hospital eleven weeks after

his admission, the cicatrix being then quite sound, but puckered up and adherent to the front of the testis. The body of the testis itself was soft, and appeared quite healthy. The hydrocele was of course cured.—*Med. Times and Gaz.*, Aug. 25, 1860.

Cholera in Spain.—According to late reports this epidemic is now committing terrible ravages in several southern districts of the Peninsula. For example, at Malaga 2,267 deaths took place by that malady, from the 1st of May to the 29th of June last; of whom a large proportion were young persons. Accounts further state that, along the Mediterranean coast—at Motril, Adra, and Almeria, the disease has proved very prevalent; as likewise in Granada and Jaen, but especially at a place called "Gualchos," where 178 deaths occurred during the first six days the malady broke out, while only two cases recovered. It has more recently attacked the inhabitants of Baylen, which is on the great highway to Madrid; where, however, public health is said to be at present satisfactory. In consequence of this outbreak of pestilential cholera in Andalusia, much terror prevails amongst the population.—*Lancet*, July 28, 1860.

Amputation at the Hip Joint in a Young Child.—A very healthy child, aged fifteen months, was admitted the other day into the London Hospital, having had his left thigh frightfully crushed by the wheel of a brewer's dray. There had been very profuse hemorrhage, and the child was collapsed and scarcely conscious. The soft parts being lacerated so high up that there was no possibility of performing amputation below the hip-joint, Mr. Ward at once placed a ligature on the femoral artery below Poupart's ligament, and then proceeded to exarticulate the shattered member. Scarcely any blood was lost during the amputation. The child, however, remained in spite of the freest use of stimulants by injection, etc., in a state of collapse, and death took place a few hours afterwards.

On examining the limb the femoral artery and veins were found torn across. The sciatic nerve and its branches were entire, though much bruised. There was a complete separation of the

epiphysis of the lower extremity of the femur. The knee joint had been laid open extensively in front, but the crucial ligaments were entire, and had prevented a complete luxation. It may be doubted whether amputation at the hip-joint has ever before been performed in so young a subject. The precaution which Mr. Ward took of first placing a ligature on the femoral artery is a very important one.—*Med. Times and Gaz.*, July 14, 1860.

Preservation of the Hip Joint by the removal of Diseased Bone.—A most instructive case of apparent hip-joint disease, in a married woman, twenty-three years of age, was admitted into University College Hospital in February. The patient was a delicate, pale, and emaciated person, who had been sent up from Kent to have the hip-joint excised. She had been the subject of strumous disease in early childhood, particularly around the ankle-joint, which had caused shortening of the affected limb. In other respects, her general health was not bad. About two years ago, she complained of pain in her right hip-joint, which was shortly after followed by an abscess on the upper and outer part of the thigh, simulating hip-joint disease. The abscess burst, and there remained a fistulous aperture just below the insertion of the tensor vaginæ femoris muscle, leading apparently to the hip-joint, but in reality not so. On careful examination, under the influence of chloroform, the mobility of the joint was found to be perfect, as it could be freely moved in every direction, with an absence of any grating sensation. The head of the thigh-bone was in its natural situation, and the shortening of the limb was clearly the result of the ankle disease in early life. A probe entered into carious bone, but not into the joint itself, and the disease appeared to be limited to the great trochanter. There was no evidence of its extension within the capsular ligament, although very close to the joint.

If left to itself, Mr. Erichson believed that the disease would extend upward to the articulation, and he therefore had no hesitation in endeavoring to remove the affected parts of the bone. This case, he observed, resembled a class of cases very commonly met with—namely caries of the cancellous structure of the head of the tibia, wherein the morbid action extended very close to the encrusting articular cartilage, but which latter escapes if the disease

is removed in time, and the knee-joint is left intact. On laying open the parts, after chloroform was given, the condition suspected was found to be present. A cavity existed in the great trochanter, which was well cleared out by means of Marshall's osteotrite; but the disease actually extended some way up the neck of the femur, and was entirely removed, leaving a clean, smooth, hard and healthy surface behind. This cavity was an inch and a half in depth. The posterior and outer edges of the trochanter were removed with forceps. The wound was now stuffed with lint, and the patient removed to bed.

The diagnosis was therefore proved to be correct, and the best measures resorted to for the woman's safety. Free suppuration followed, the wound slowly filled up by granulation, and by the 28th of March it had entirely healed, excepting a single fistula passing behind the trochanter. The back of the thigh had been supported by a paste-board splint, and the patient was sitting up, much improved in her general health under the use of cod-liver oil and quinine, with unimpaired mobility of the joint.—*Lancet*, July 28, 1860.

Distinguished Medical Men.—In the ranks of general literature and science, British Medicine is rich at the present time in representative men—Sir Benjamin Brodie, President of the Royal Society; Livingstone, the pioneer of civilization in Central Africa; Owen, the British Cuvier; Darwin the far seeing, fact compelling, naturalist; Lever, the Irish novelist; Sir James Kay Shuttleworth, the public educationist; Sir Charles Nicholson, founder of the University of Sydnye, and the first inhabitant of the great colony of Australia, honored with rank and title by the mother country. May the possessors of these names long survive to reflect credit on us, do honor to themselves, and good in their generation! Nor can we omit our need of admiration for our French *confrere*—Lescarbault, who amidst the distractions and fatigues of a country practice, last year could yet manage to discover a new planet in the heavens, and so inscribe his own name imperishably on the scroll of astronomic fame.—*Dr. Radclyffe Hall.—Lancet*, Aug. 25 1860.

XUM

FOURTEENTH ANNOUNCEMENT OF LECTURES OF

STARLING MEDICAL COLLEGE.

FOR THE SESSION OF 1860–61.

COLUMBUS, O.

THE next session of Starling Medical College will commence on Thursday, October 18, 1860, and will be continued until the 1st of March.

The Dissecting rooms for the study of practical Anatomy, will be open from the commencement of October.

The Museum of the Institution has been made very attractive by late receipts from France and Germany.

The College building is in complete order, the east wing having been entirely completed.

FACULTY:

S. M. SMITH, M.D.,
Professor of Theory and Practice.

FRANCIS CARTER, M.D.,
Professor of Obstetrics, and Diseases of Women and Children.

J. W. HAMILTON, M.D.,
Professor of Surgery.

JOHN DAWSON, M.D.,
Professor of General and Special Anatomy and Physiology.

S. LOVING, M.D.,
Professor of Materia Medica, Therapeutics and Medical Jurisprudence.

THEO. G. WORMLEY, M.D.,
Professor of Chemistry.

R. N. BARR, M.D.,
Demonstrator of Anatomy.

FEES:

Tickets of all the Professors, ...	$60 00
Matriculation Ticket, paid but once, ...	5 00
Graduation Fee, ...	20 00

Subjects for dissection in the building, furnished at a moderate expense, on application to the Demonstrator of Anatomy, *and in no other way.*

There are two extensive Bookstores in Columbus, at which Medical works in great variety are sold at very low rates. Surgical, Obstetrical, and Dissecting instruments are readily obtained.

All letters of inquiry will receive prompt attention, if addressed to any member of the Faculty, or to S. M. SMITH, *Dean.*